



PACKAGE GAS ELECTRIC FURNACES INSTALLATION INSTRUCTIONS

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GAS FURNACE SAFETY



Recognize this symbol as a safety precaution.

Please adhere to the following warnings and cautions when installing, adjusting, altering, servicing or operating the furnace.



WARNING

Hazards or unsafe practices could result in property damage, product damage, severe personal injury or death.



CAUTION

Hazards or unsafe practices may result in property damage, product damage, personal injury or death.

CAUTION

Hazards or unsafe practices may result in property or product damage.



Whirlpool Gold® Models
WGGE45

WPIO-325C

Whirlpool® Home Cooling and Heating
14610 Breakers Drive
Jacksonville, FL 32258



IMPORTANT SAFETY INSTRUCTIONS

- Use only with type of gas approved for this furnace. Refer to the furnace rating plate.
- Install this furnace only in a location and position as specified in the "Location Requirements" section of these instructions.
- Provide adequate combustion and ventilation air to the furnace space as specified in the "Venting Requirements" section of these instructions.
- Combustion products must be discharged outdoors. Connect this furnace to an approved vent system only, as specified in the "Venting Requirements" section of these instructions.
- Never test for gas leaks with an open flame. Use a commercially available soap solution made specifically for the detection of leaks to check all connections, as specified in the "Make Gas Connections" section of these instructions.
- Adequate clearance must be provided around the vent-air intake terminals.
- Always install furnace to operate within the furnace's intended temperature-rise range with a duct system which has an external static pressure within the allowable range, as specified in the "Complete Installation" section of these instructions. See furnace rating plate.
- When a furnace is installed so that supply ducts carry air circulated by the furnace to areas outside the space containing the furnace, the return air shall also be handled by duct(s) sealed to the furnace casing and terminating outside the space containing the furnace.
- A gas-fired furnace for installation in a residential garage must be installed as specified in the "Location Requirements" section of these instructions.
- The furnace shall be installed so the electrical components are protected from water.
- Furnaces for indoor installation on combustible flooring shall not be installed directly on carpeting, tile or other combustible material other than wood flooring.

SAVE THESE INSTRUCTIONS

To the Installer

Before installing this unit, please read this manual thoroughly to familiarize yourself with specific items which must be adhered to, including but not limited to: unit maximum external static pressure, gas pressures, Btu input rating, proper electrical connections, circulating air temperature rise, minimum or maximum CFM and motor speed connections and venting. These furnaces are designed for Category I venting only.

WARNING

If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

— Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

— WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

— Installation and service must be performed by a qualified installer, service agency or the gas supplier.

WARNING

Should overheating occur or the gas supply fail to shut off, turn off the manual gas shutoff valve external to the furnace before turning off the electrical supply.

WARNING

Do not connect to or use any device that is not design-certified for use with this unit. Serious property damage, personal injury, reduced unit performance and/or hazardous conditions may result from the use of such non-approved devices.

WARNING

This product contains or produces a chemical or chemicals which may cause serious illness or death and which are known to the State of California to cause cancer, birth defects or other reproductive harm.

WARNING

Heating unit should not be utilized without reasonable, routine inspection, maintenance and supervision. If the building in which any such device is located will be vacant, care should be taken that such device is routinely inspected, maintained and monitored. In the event that the building may be exposed to freezing temperatures and will be vacant, all water-bearing pipes should be drained, the building should be properly winterized and the water source closed. In the event that the building may be exposed to freezing temperatures and will be vacant, any hydronic coil units should be drained as well, and, in such case, alternative heat sources should be utilized.

WARNING

To avoid property damage, personal injury or death, do not use this furnace if any part of the furnace has been under water. Immediately call a qualified service technician to inspect the furnace and to replace any part of the control system and any gas control having been under water.

WARNING

This unit must not be used as a “construction heater” during the finishing phases of construction on a new structure. This type of use may result in premature failure of the unit due to extremely low return air temperatures and exposure to corrosive or very dirty atmospheres.

WARNING

HIGH VOLTAGE!

Disconnect ALL power before servicing.

Multiple power sources may be present.

Failure to do so may cause property damage, personal injury or death.



WARNING

To prevent the risk of property damage, personal injury, or death, do not store combustible materials or use gasoline or other flammable liquids or vapors in the vicinity of this unit.

WARNING

Installation and repair of this unit should be performed **ONLY** by individuals meeting the requirements of an “Entry Level Technician” as specified by the Air-Conditioning, Heating and Refrigeration Institute (AHRI). Attempting to install or repair this unit without such background may result in product damage, personal injury or death.



DANGER



CARBON MONOXIDE POISONING HAZARD

Special Warning for Installation of Furnace or Air Handling Units in Enclosed Areas such as Garages, Utility Rooms or Parking Areas.

Carbon monoxide producing devices (such as an automobile, space heater, gas water heater, etc.) should not be operated in enclosed areas such as unventilated garages, utility rooms or parking areas because of the danger of carbon monoxide (CO) poisoning resulting from the exhaust emissions. If a furnace or air handler is installed in an enclosed area such as a garage, utility room or parking area and a carbon monoxide producing device is operated therein, there must be adequate, direct outside ventilation.

This ventilation is necessary to avoid the danger of CO poisoning which can occur if a carbon monoxide producing device continues to operate in the enclosed area. Carbon monoxide emissions can be (re)circulated throughout the structure if the furnace or air handler is operating in any mode.

CO can cause serious illness including permanent brain damage or death.

INSTALLATION REQUIREMENTS

WARNING

To prevent property damage, personal injury or death, due to fire, explosions, smoke, soot, condensation, electric shock or carbon monoxide, this unit must be properly installed, repaired, operated and maintained.

These instructions are intended as a general guide only for use by qualified persons and do not supersede any national or local codes in any way. Compliance with all local, state, or national codes pertaining to this type of equipment should be determined prior to installation.

Read this entire instruction manual, as well as the instructions supplied in separate equipment, before starting the installation.

The installation of the unit, wiring, warm air ducts, venting, etc. must conform to the requirements of the National Fire Protection Association; the National Fuel Gas Code, ANSI Z223.1/NFPA No. 54 (latest edition) and the National Electrical Code, ANSI/NFPA No. 70 (latest edition) in the United States, and any state laws, local ordinances (including plumbing or wastewater codes), or local gas utility requirements. Local authorities having jurisdiction should be consulted before installation is made. Such applicable regulations or requirements take precedence over the general instructions in this manual.

Tools and Parts

Gather the required tools before starting installation. Read and follow the instructions provided with any tools listed here.

Tools Needed

- Pipe wrench
- Noncorrosive leak detection solution
- Screwdriver
- Test gauge with 1/8" NPT connection (for measuring gas supply pressure)
- Tape measure
- Thread sealant

Parts Needed

Check local codes and with gas supplier. Check existing gas supply, electrical supply, and venting, and read "Ductwork Requirements," "Electrical Requirements" and "Gas Supply Requirements" before purchasing parts.

Location Requirements

All Installations

WARNING

To prevent possible equipment damage, property damage, personal injury or death, the following bullet points must be observed when installing the unit.

- For proper flame pattern within the heat exchanger and proper condensate drainage, the unit must be mounted level.
- The flue outlet hood must be at least 12" (30.5 cm) from any opening through which flue gases could enter a building, and at least 36" (91.4 cm) above any forced air inlet located within 10 ft (3 m). The economizer/manual fresh air intake/motorized fresh air intake and combustion air inlet mounted on the unit are not affected by this restriction.

- To avoid possible corrosion of the heat exchanger, do not locate the unit in an area where the outdoor air (for example, combustion air for the unit) will be frequently contaminated by compounds containing chlorine or fluorine. Common sources of such compounds include swimming pool chemicals and chlorine bleaches, paint stripper, adhesives, paints, varnishes, sealers, waxes (which are not yet dried) and solvents used during construction and remodeling. Various commercial and industrial processes may also be sources of chlorine/fluorine compounds.
- To avoid possible illness or death of the building occupants, do not locate outside air intake device (economizer, manual fresh air intake, motorized fresh air intake) too close to an exhaust outlet, gas vent termination or plumbing vent outlet. For specific distances required, consult local codes.
- Allow minimum clearances from the enclosure for fire protection, proper operation, and service access. These clearances must be permanently maintained.
- The combustion air inlet and flue outlet hoods on the unit must never be obstructed. If used, do not allow the economizer/manual fresh air damper/ motorized fresh air damper to become blocked by snow or debris. In some climates or locations, it may be necessary to elevate the unit to avoid these problems.
- When the unit is heating, the temperature of the return air entering the unit must be between 50°F and 100°F (10°C and 37.8°C).

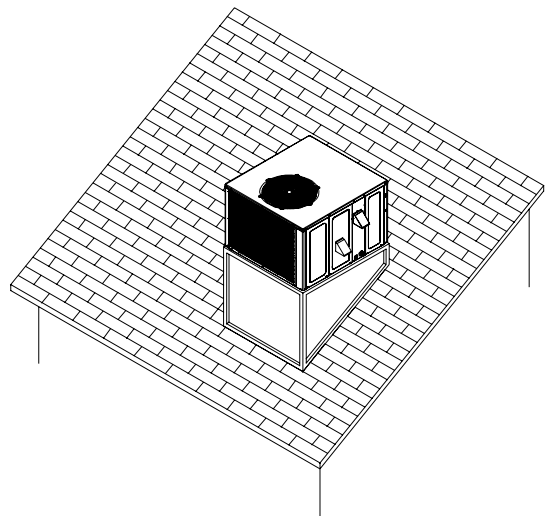
Ground Level Installations Only

- When the unit is installed on the ground adjacent to the building, a level concrete (or equal) base is recommended. Prepare a base that is 3" (7.6 cm) larger than the package unit footprint and a minimum of 3" (7.6 cm) thick.
- The base should also be located where no runoff of water from higher ground can collect in the unit.

Rooftop Installations Only

- The roof must have sufficient structural strength to carry the weight of the unit(s) and snow or water loads as required by local codes. Consult a structural engineer to determine the weight capabilities of the roof.

Rooftop Installation

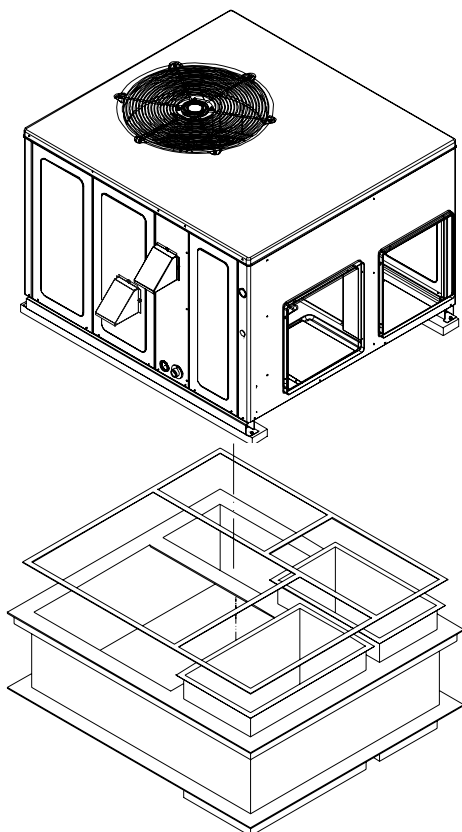


- The unit may be installed directly on wood floors or on Class A, Class B, or Class C roof covering material.
- A safe, flat surface for service personnel should be provided.

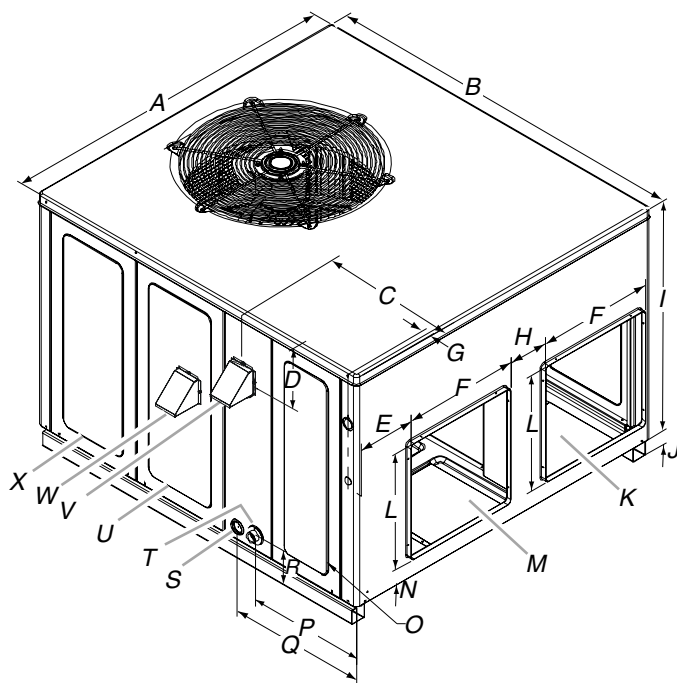
Roof Curb Installations Only

- Sufficient structural support must be determined prior to locating and mounting the curb and package unit.
- Ductwork must be constructed using industry guidelines. The ductwork must be placed into the roof curb before mounting the package unit.
- Curb insulation, cant strips, flashing and general roofing material are furnished by the contractor.

Roof Curb Installation

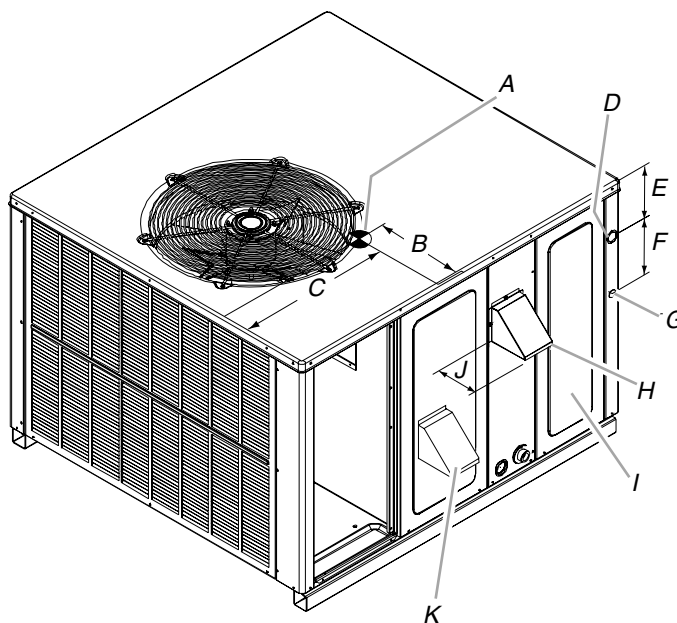


Unit Dimensions—Rear



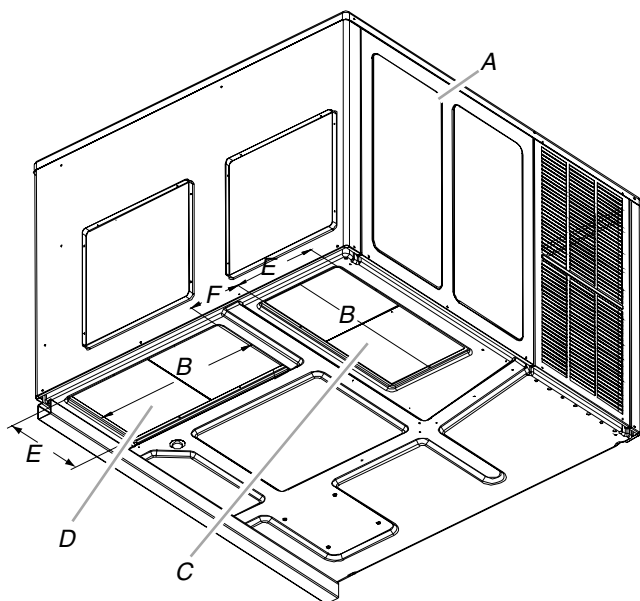
A. 47" (119.4 cm)	J. 2 3/4" (7 cm)	R. 4 3/4" (12.1 cm)
B. 51" (129.5 cm)	K. Air return	S. Gas supply entrance
C. 18 7/16" (46.8 cm)	L. Medium: 16" (40.6 cm), large: 18" (45.7 cm)	T. Condensate drain connection—3/4" (1.9 cm) NPT female
D. Medium: 9 1/2" (24.2 cm), large: 14" (35.6 cm)	M. Air supply	U. Heat exchange access panel
E. 7 1/16" (20.2 cm)	N. 3" (7.6 cm)	V. Flue exhaust hood
F. 16" (40.6 cm)	O. Evaporator/control panel access panel	W. Combustion air inlet
G. 1 3/8" (3.5 cm)	P. 16 1/8" (40.9 cm)	X. Suction/liquid pressure ports behind compressor access panel
H. 5 1/2" (14 cm)	Q. 19 1/8" (48.6 cm)	
I. Medium: 32" (81.3 cm), large: 40" (101.6 cm)		

Unit Dimensions—Side



A. Center of gravity	E. 7 5/16" (17.6 cm)	I. Control access panel
B. 20" (50.8 cm)	F. 7 7/8" (30 cm)	J. 5 1/4" (13.3 cm)
C. 24" (61 cm)	G. Control wire entrance	K. Combustion air intake
D. Power supply wire entrance	H. Flue exhaust hood	

Unit Dimensions—Inside

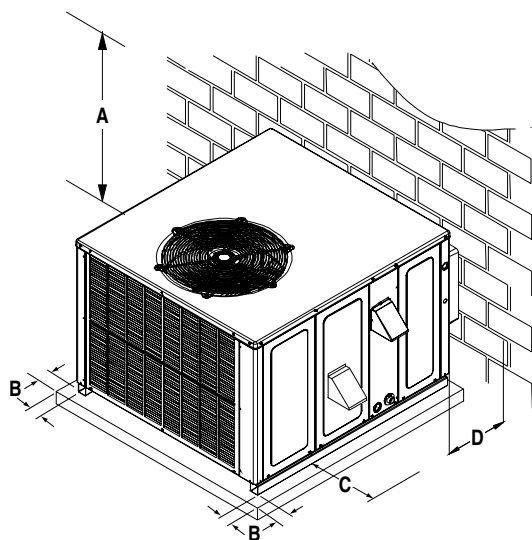


A. Blower access panel
B. 22" (55.9 cm)
C. Air return

D. Air supply
E. 11" (27.9 cm)
F. 5 3/4" (14.6 cm)

Minimum Clearances

NOTE: Roof overhang should be no more than 36" (91.4 cm).



A. 48" (121.9 cm) minimum
B. 12" (30.5 cm) minimum
C. 36" (91.4 cm) minimum service access
D. 3" (7.6 cm) minimum

Ductwork Requirements

- Install all conditioned air plenums, ducts and air filters (if not provided on the unit) in accordance with NFPA 90B Standard for the Installation of Warm Air Heating and Air-Conditioning Systems (latest edition).
- The unit is provided with flanges for the connection of the plenum and ducts.
- All air filters must be listed as Class 2 furnace air filters.
- All ductwork must be made of materials and insulated to meet local, state and national codes. Ductwork installed outdoors must be sealed and be weatherproof to avoid physical damage. Caulking, flashing or other means of adequately providing a permanent weather seal should be used where duct penetrates a building or structure opening.

Filter Requirements

CAUTION

To prevent property damage due to fire and loss of equipment efficiency or equipment damage due to dust and lint build up on internal parts, never operate unit without an air filter installed in the return air system.

Filters

Filters are not supplied with these units; however, filters must be used. It is the installer's responsibility to install a filter rack with the ductwork and to install properly sized filters in accordance with the Minimum Required Surface Area for Disposable Filters chart.

All return air must pass through a filter before entering the unit. An electronic air cleaner, filter rack or other accessible filter arrangement must be installed in the return air ductwork. Minimum recommended filter areas are listed in the Minimum Required Surface Area for Disposable Filters chart, and are based on a face velocity of 325 ft (99.1 m) per min. for disposable filters and 525 ft (160 m) per min. for cleanable filters

Filter Sizes

Unit	Minimum Filter Size
2 ton	20 x 20 x 1 (1)
2.5 ton	20 x 25 x 1 (1)
3 ton	25 x 25 x 1 (1)
3.5 to 4 ton	20 x 20 x 1 (2)
5 ton	20 x 25 x 1 (2)

Filter Installation

IMPORTANT: When installing a filter, the airflow arrows on the filter must point toward the circulator blower.

Electrical Requirements

NOTE: All outdoor wiring must be suitable for outdoor use. Use copper conductors only.

- All field wiring must be done in accordance with National Electrical Code requirements, applicable requirements of UL, or local codes, where applicable.
- Electrical wiring, disconnect means and over-current protection are to be supplied by the installer. Refer to the rating plate for the maximum over-current protection, minimum service ampacity, and operating voltage. See the wiring connection diagrams in “Troubleshooting.”
- This unit must be electrically grounded in accordance with National Electric Code (ANSI/NFPA 70) requirements, applicable requirements of UL, or local codes, where applicable.

Gas Supply Requirements

This unit is equipped for use with Natural gas. A conversion kit is required for use with propane. To order the correct conversion kit, see your local distributor.

- Gas supply piping should be installed in accordance with local, state and national codes and the regulations of the utility. Piping must be of adequate size to prevent undue pressure drop. Consult the local utility or gas supplier for complete details on special requirements for sizing gas piping.
- If local codes allow the use of a flexible gas appliance connector, use a CSA design-certified outdoor flexible stainless steel appliance connector or rigid gas supply line as needed.

INSTALLATION INSTRUCTIONS

Inspect Shipment

Check the carton upon arrival for external damage. If damage is found, a request for an inspection by the carrier agent should be made in writing immediately.

Inspect the unit for damage including damage to the cabinetry. Any bolts or screws which may have loosened in transit must be retightened.

In the event of damage, the receiver should:

- Make a notation on the delivery receipt of any visible damage to the shipment or container.
- Notify the carrier promptly and request an inspection.
- In case of concealed damage, the carrier should be notified as soon as possible—preferably within 5 days.
- File the claim with the following supporting documents:
 - a) Original Bill of Lading, certified copy, or indemnity bond.
 - b) Original paid freight bill or indemnity in lieu thereof.
 - c) Original invoice or certified copy thereof, showing trade and other discounts or reductions.
 - d) Copy of the inspection report issued by the carrier representative at the time damage is reported to the carrier. The carrier is responsible for making a prompt inspection of the damage and for a thorough investigation of each claim. The distributor or manufacturer will not accept claims from dealers for transportation damage.

NOTES:

- When inspecting the unit for transportation damage, remove all packaging materials.
- Recycle/dispose of the packaging material according to local codes
- If any damages are discovered and reported to the carrier, do not install this unit, because your claim may be denied.

Place Unit in Final Location



WARNING

To prevent property damage, the unit should remain in an upright position during all rigging and moving operations. To facilitate lifting and moving when a crane is used, place the unit in an adequate cable sling.

IMPORTANT: Place the unit in the final location and position it in the proper orientation to the house so that connecting ducts, electrical and gas supplies is easily done. Hoisting may be required.

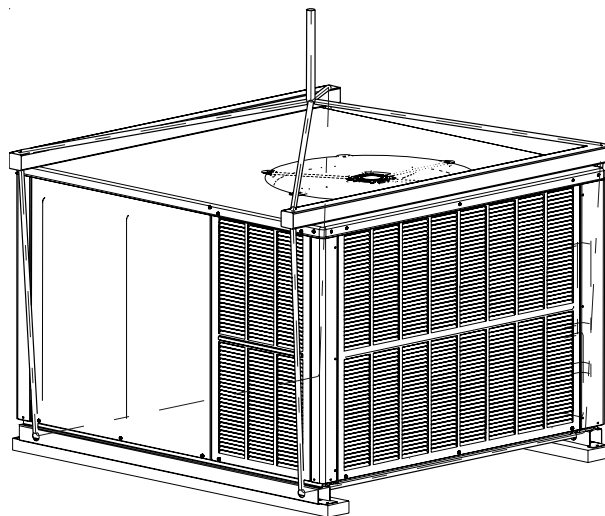
Hoisting

IMPORTANT: If using the bottom discharge with the roof curb, the ductwork should be attached to the curb prior to installing the unit. Ductwork dimensions are shown in the roof curb installation instructions.

See “Roof Curb Installations Only” in “Location Requirements” for the proper curb installation. Curbing must be installed in compliance with the National Roofing Contractors Association Manual.

Lower the unit onto the roof mounting curb. While rigging the unit, the center of gravity will cause the condenser end to be lower than the supply air end.

Rigging



Airflow Conversion

Units can easily be converted from horizontal to downflow airflow delivery. In downflow or high-static installations, the installer should measure the total external static and review the blower performance charts before performing the installation. In some installations, it will be necessary to change the blower speed to provide proper airflow.

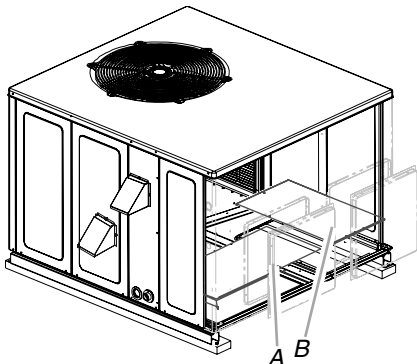
Horizontal Application

This unit is shipped ready for horizontal application.

Downflow Application

For downflow applications, horizontal supply and return duct cover kits must be ordered from your distributor. Kit number 20464501PDGK is for the medium chassis and kit number 20464502PDGK is for the large chassis.

Cut insulation around the bottom openings and remove the panels from the bottom of the unit, saving the screws holding the panels in place.



A. Return air panel
B. Supply air panel

Hood Installation

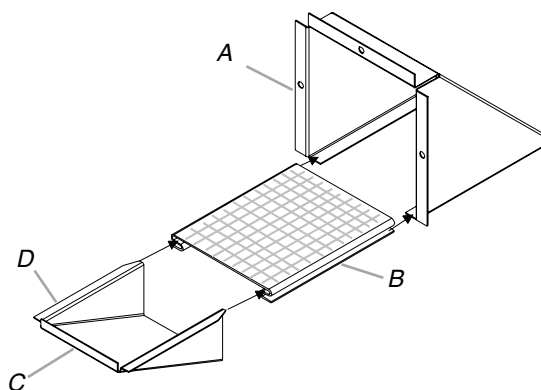
Install Flue Exhaust Hood

Install the flue exhaust hood, screen and lower flue hood prior to operation of the unit.

To install the flue hood, screen and lower flue hood:

1. Remove the flue exhaust hood assembly box from the blower compartment.
2. Slide the screen over the flanges of the lower flue hood.
3. Slide the screen and lower flue hood assembly into the flue exhaust hood.

Flue Exhaust Hood Assembly



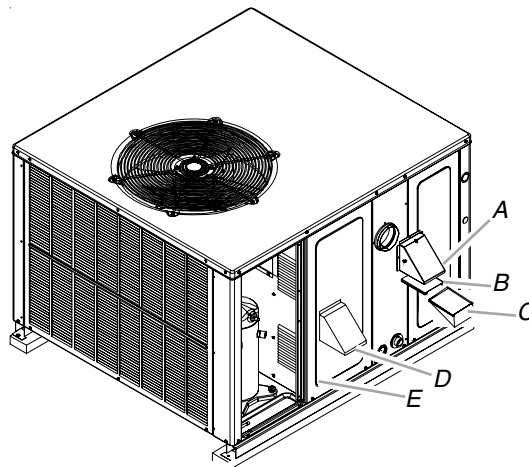
A. Flue exhaust hood
B. Screen
C. Lip
D. Lower flue hood

4. Using the 3 screws provided, attach the flue exhaust hood assembly, with the opening facing down, over the flue exhaust opening in the utility panel. See "Hood Attachment" illustration.

Install Combustion Air Intake Hood

1. Locate the second hood.
2. Using the 3 screws provided, attach the combustion air intake hood, with the opening facing down, to the heat exchanger access door.

Hood Attachment



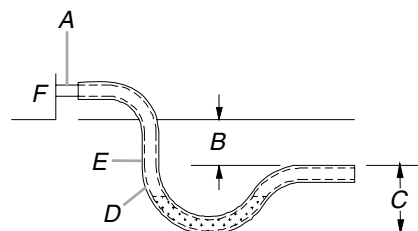
A. Flue exhaust hood
B. Screen
C. Lower flue hood
D. Combustion air intake hood
E. Heat exchanger door

Connect Condensate Drain

The condensate drain outlet is a $\frac{3}{4}$ " threaded PVC fitting located at the bottom on the side of the unit. A $\frac{3}{4}$ " drain line with trap must be installed on all applications to avoid accumulation of condensate under or around the unit.

Condensate Drain Connection

A $\frac{3}{4}$ " (1.9 cm) NPT drain connection is supplied for condensate piping. An external trap must be installed for proper condensate drainage.



A. Drain connection
B. 2" (5.1 cm) minimum
C. 3" (7.6 cm) minimum
D. Positive liquid seal (required)
E. Flexible tubing, hose or pipe
F. Unit

Install Ductwork

- Install ductwork in accordance with NFPA 90B and any local codes.
- The use of flexible, noncombustible connectors between the main trunk ducts and the supply and return air plenums is recommended to minimize vibration transmission.
- Plenums must be individually sealed to the unit casing with ducts terminating inside the structure.

- Flashing used to cover ductwork must permit removal of access panels and top. See “Minimum Clearances” in the “Locations Requirements” section.

Make Electrical Connections



WARNING

HIGH VOLTAGE!

Disconnect **ALL** power before servicing.

Multiple power sources may be present.

Failure to do so may cause property damage, personal injury or death.



Thermostat

Thermostat Location

Mount the thermostat approximately 5 ft (1.5 m) above the floor, in an area that has an inside, vibration-free wall and has good air circulation.

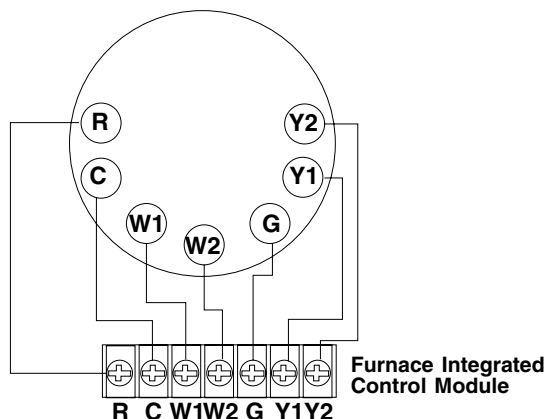
Movement of air must not be obstructed by furniture, door, draperies, etc. The thermostat must not be mounted where it will be affected by drafts, hot or cold water pipes or air ducts in walls, radiant heat from fireplace, lamps, the sun, television, etc. Consult the Instruction Sheet packaged with the thermostat for mounting instructions.

NOTE: WGGE4524, WGGE4530, WGGE4537 and WGGE4542 units have 1 stage of mechanical cooling and 2 stages of heating. All other units have 2 stages of heating and 2 stages of mechanical cooling. Units which will have economizers may use thermostats with 2 or 3 stages of cooling. All units can use single-stage or multistage thermostats. Refer to the following thermostat illustrations for wiring.

All units have 1 stage of heating and one stage of mechanical cooling. Units which will have economizers may use thermostats with 1 or 2 stages of cooling.

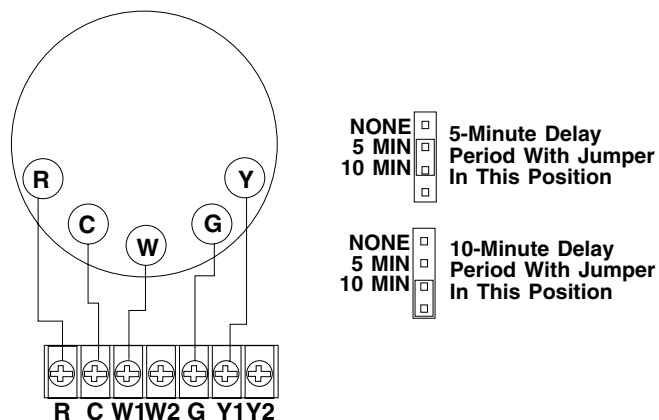
The units are designed for operation on 60 hertz current and at voltages as shown on the rating plate. All internal wiring in the unit is complete. It is necessary to bring in the power supply to the contactor as shown on the unit wiring diagram which is supplied with each unit. Twenty-four volt wiring must be connected between the unit control panel and the room thermostat.

2-Stage Heating with 2-Stage Cooling Thermostat



Single-Stage Thermostat

To use a single-stage thermostat, move the jumper located to the left of the terminal strip labeled “Stage Delay” from “NONE” to “5 MIN” or “10 MIN.” This selection will cause the control to run on low stage for the selected time (5 or 10 minutes), and then shift to high stage. This option controls both cooling and heating modes. If the jumper is not moved, only low-stage cool and low-stage heat will operate.



IMPORTANT:

- Electrical wiring, disconnect means and over-current protection are to be supplied by the installer. Refer to the rating plate for the maximum over-current protection, minimum circuit ampacity and operating voltage. See the wiring connection diagrams in “Troubleshooting.”
- Install an adequate sized branch circuit disconnect, according to the NEC, within sight of and readily accessible to the unit.
- The cable or conduit and fittings connected from the disconnect switch to the unit wiring connections shall be rated for outdoor use.
- Check the unit rating plate to determine whether the system is rated single phase or three phase and follow the appropriate instructions for connecting the pigtail leads.
- Plug unused side entry holes with field-supplied plugs to keep moisture from entering the unit.
- Low voltage wiring must be separated from line voltage wiring.

Line Voltage Connections



WARNING

HIGH VOLTAGE!

To avoid the risk of injury, electrical shock or death, the furnace must be electrically grounded in accordance with local codes or in their absence, with the latest edition of the National Electric Code (NEC).



WARNING

To avoid the risk of electrical shock, wiring to the unit must be polarized and grounded.

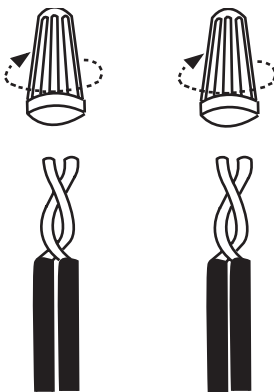
WARNING

To avoid the risk of fire or equipment damage, use copper conductors.

CAUTION

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

3. Disconnect power.
4. Remove the control access panel.
5. Route the field supply wires through the line voltage conduit opening to the electrical connection area, providing sufficient length to connect to the pigtail leads.
6. Connect the field supply wires (L1, L2) to the 2 black pigtail leads using UL-Listed wire connectors.



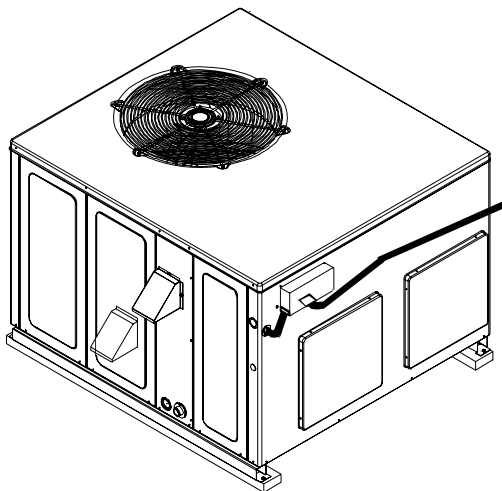
To avoid damage to the unit, use a fuse or HACR circuit breaker that is in excess of the circuit ampacity, but less than or equal to the maximum over-current protection device.

IMPORTANT: Do not exceed the maximum over-current device size shown on the unit data plate.

All line voltage connections must be made through weatherproof fittings. All exterior power supply and ground wiring must be in approved weatherproof conduit. Low voltage wiring from the unit control panel to the thermostat requires coded cable.

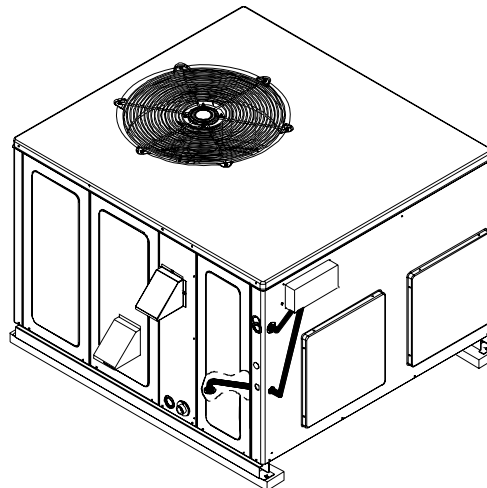
Electrical Power Directly to Junction Box

NOTE: Junction box location shown is optional and is for illustration purposes only.



Electrical Power Routed Through Bottom of Unit

NOTE: Junction box location shown is optional and is for illustration purposes only.



208 Volt Conversion

WARNING

HIGH VOLTAGE!

Disconnect ALL power before servicing.

Multiple power sources may be present.

Failure to do so may cause property damage, personal injury or death.



1. Disconnect power.
2. Remove the burner access panel.
3. Move the black wire lead from the 240-volt terminal on the transformer to the 208-volt terminal (center tap) on the transformer. See the wiring connection diagrams in "Troubleshooting."
4. Replace the burner access panel.

Make Gas Connections

NOTE: This unit is factory set to operate on Natural gas at the altitudes shown on the rating plate.

WARNING

To avoid property damage, personal injury or death when either using propane gas alone or at higher altitudes, obtain and install the proper conversion kit(s). Failure to do so can result in unsatisfactory operation and/or equipment damage. High altitude kits are for U.S. installations only and are not approved for use in Canada.

The rating plate is stamped with the model number, type of gas and gas input rating. Make sure the unit is equipped to operate on the type of gas available. Conversion to LP gas is permitted with the use of the factory-authorized conversion kit LPT-00A.

NOTE: Inlet gas pressure must not exceed the maximum value shown in the Inlet Gas Pressure chart.

Inlet Gas Pressure

Natural	Minimum: 5.0" W.C. Maximum: 10.0" W.C.
Propane	Minimum: 11.0" W.C. Maximum: 13.0" W.C.

The minimum supply pressure should not vary from that shown in the Inlet Gas Pressure chart, because this could prevent the unit from having dependable ignition. In addition, gas input to the burners must not exceed the rated input shown on the rating plate. Overfiring of the unit could result in premature heat exchanger failure.

High Altitude Derate—U.S. Installations Only

IMPORTANT: The gas/electric units naturally derate with altitude. Do not attempt to increase the firing rate by changing orifices or increasing the manifold pressure. This can cause poor combustion and equipment failure. At all altitudes, the manifold pressure must be within 0.3" W.C. of that listed on the nameplate for the fuel used. At all altitudes and with either fuel, the air temperature rise must be within the range listed on the unit nameplate.

Refer to the installation manual provided with the LP kit for conversion from Natural gas to propane gas and for altitude adjustments.

Use HA02 for installations above 2,000 ft (609.6 m).

Piping

IMPORTANT: To avoid possible unsatisfactory operation or equipment damage due to underfiring of equipment, do not undersize the Natural/propane gas piping from the meter/tank to the unit. When sizing a trunk line, include all appliances on that line that could be operated simultaneously.

The rating plate is stamped with the model number, type of gas and gas input rating. Make sure the unit is equipped to operate on the type of gas available. The gas line installation must comply with local codes, or in the absence of local codes, with the latest edition of the National Fuel Gas Code NFPA 54/ANSI Z223.1.

Natural Gas Connection

Natural Gas Capacity of Pipe in Cu Ft (m³) of Gas Per Hour (CFH)

Length of Pipe—ft (m)	Nominal Black Pipe Size				
	½"	¾"	1"	1¼"	1½"
10 (3)	132	278	520	1,050	1,600
20 (6.1)	92	190	350	730	1,100
30 (9.2)	73	152	285	590	980
40 (12.2)	63	130	245	500	760
50 (15.2)	56	115	215	440	670
60 (18.3)	50	105	195	400	610
70 (21.3)	46	96	180	370	560
80 (24.4)	43	90	170	350	530
90 (27.4)	40	84	160	320	490
100 (30.5)	38	79	150	305	460

Pressure = 0.50 psig or less and pressure drop of 0.3" W.C. (Based on 0.60 specific gravity gas)

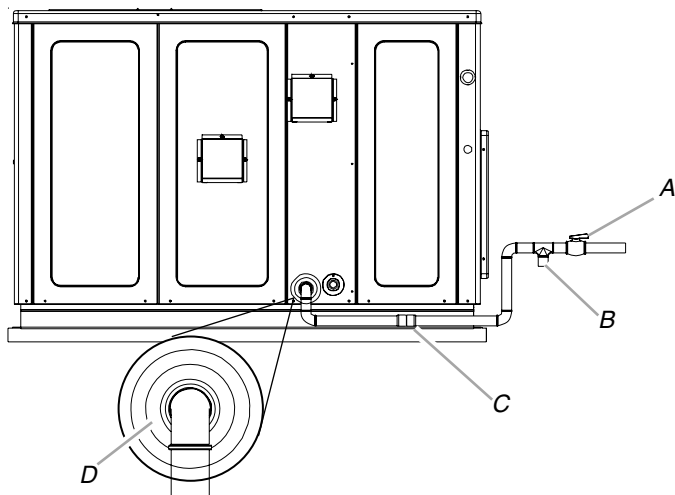
$$\text{CFH} = \frac{\text{Btu/h Unit Input}}{\text{Heating Value of Gas (Btu/Cu Ft)}}$$

Refer to the "Proper Piping Practice" illustration for the general layout at the unit. The following rules apply:

1. Use black iron pipe and fittings for the supply piping. The use of a flex connector and/or copper piping is permitted as long as it is in agreement with local codes.
2. Use pipe joint compound on male threads only. Pipe joint compound must be resistant to the action of the fuel used.
3. Use ground joint unions.
4. Install a drip leg to trap dirt and moisture before it can enter the gas control valve. The drip leg must be a minimum of 3" (7.6 cm) long.
5. Use 2 pipe wrenches when making the connection to the gas control valve to keep the valve from turning.

6. Install a manual shut off valve in a convenient location (within 6 ft [1.8 m] of the unit) between the meter and the unit.
7. Tighten all joints securely.
8. The unit must be connected to the building piping by one of the following methods:
 - Rigid metallic pipe and fittings
 - Semirigid metallic tubing and metallic fittings (aluminum alloy tubing must not be used in exterior locations)
 - Listed gas appliance connectors used in accordance with the terms of their listing that are completely in the same room as the equipment
 - The connector or tubing must be protected against physical and thermal damage. Aluminum alloy tubing and connectors must be coated to avoid external corrosion when in contact with masonry, plaster or insulation or are subject to repeated wettings by liquids (water—not rainwater, detergents or sewage).

Proper Piping Practice



A. Manual shutoff valve
B. Drip leg
C. Ground joint union (installed upstream of gas control valve)
D. Grommet

NOTE: The unit gas supply entrance is factory sealed with plugs. Keep plugs in place until gas supply is ready to be installed. Once ready, replace the plugs with the supplied grommets and install gas supply line.

Check Gas Piping

CAUTION

To prevent property damage or personal injury due to fire, the following instructions must be performed regarding gas connections and pressure testing:

-The unit and its gas connections must be leak tested before placing in operation. Because of the danger of explosion or fire, never use a match or open flame to test for leaks. Never exceed specified pressures for testing. Higher pressure may damage gas control valve and cause overfiring which may result in premature heat exchange failure.

-The unit and its gas shutoff valve must be disconnected from the gas supply during any pressure testing of that system at test pressures in excess of ½ psig (3.48 kPa).

-This unit must be isolated from the gas supply system by closing its manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than ½ psig (3.48 kPa).

IMPORTANT:

- The unit and its gas connections must be leak tested before placing in operation.
- Do not use a match or open flame to test for leaks.
- Do not exceed specified pressures for testing.

- Disconnect this unit and its shutoff valve from the gas supply during any pressure testing of the system at test pressures in excess of ½ psig (3.48 kPa).
- Close the manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than ½ psig (3.48 kPa).



WARNING

To avoid property damage or personal injury, be sure there is **NO OPEN FLAME** in the vicinity during air bleeding.

There will be air in the gas supply line after testing for leaks on a new installation. Therefore, the air must be bled from the line by loosening the ground joint union until pure gas is expelled. Tighten the ground joint union and wait for 5 minutes until all gas has been dissipated in the air. Be certain there is no open flame in the vicinity during air bleeding procedure. The unit is placed in operation by closing the main electrical disconnect switch for the unit.

Install Propane Gas



WARNING

To avoid property damage, personal injury or death due to fire or explosion caused by a propane gas leak, install a gas detecting warning device. Since rust can reduce the level of odorant in propane gas, a gas detecting warning device is the only reliable way to detect a propane gas leak. Contact a local propane gas supplier about installing a gas detecting warning device.

NOTE: Propane gas conversion kits must be installed to convert units to propane gas.

A gas detecting warning system is the only reliable way to detect a propane gas leak. Rust can reduce the level of odorant in propane gas. Do not rely on your sense of smell. Contact a local propane gas supplier about installing a gas detecting warning system.

All propane gas equipment must conform to the safety standards of the National Board of Fire Underwriters, NBFU Manual 58.

For satisfactory operation, propane gas supply pressure must be within 9.7" W.C. to 10.3" W.C. at the furnace manifold with all gas appliances in operation.

Maintaining proper gas pressure depends on 3 main factors:

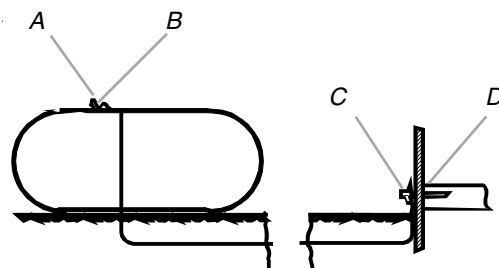
- Vaporization rate, depending on the temperature of the liquid and the wetted surface area of the container or containers.
- Proper pressure regulation. Two-stage regulation is recommended for both cost and efficiency.
- Pressure drop in the lines between the regulators, and between 2nd stage regulator and the appliance. Pipe size required will depend on the length of the pipe run and the total load of all appliances.

Tanks and Piping

Complete information regarding tank sizing for vaporization, recommended regulator settings, and pipe sizing is available from most regulator manufacturers and propane gas suppliers.

Since propane gas will quickly dissolve white lead and most standard commercial compounds, special pipe dope must be used. Shellac-based compounds resistant to the actions of liquefied petroleum gases are satisfactory.

Propane Gas Installation—Typical



A. 1st stage regulator

B. 5 to 15 psig (20 psig maximum)

C. 2nd stage regulator

D. Continuous 11" W.C.

NOTE: 200 psig maximum tank pressure.

Sizing Between 1st and 2nd Stage Regulator*

Maximum propane capacities listed are based on 1 psig pressure drop at 10 psig setting. Capacities in 1,000 Btu/h.

Propane Gas Piping Chart I

Pipe or Tubing Length—ft (m)	Tubing Size, O.D., Type L					Nominal Pipe Size, Schedule 40	
	3/8"	1/2"	5/8"	3/4"	7/8"	1/2"	3/4"
30 (9.2)	309	700	1,303	2,205	3,394	1,843	3,854
40 (12.2)	265	599	1,115	1,887	2,904	1,577	3,298
50 (15.2)	235	531	988	1,672	2,574	1,398	2,923
60 (18.3)	213	481	896	1,515	2,332	1,267	2,649
70	196	446	824	1,394	2,146	1,165	2,437
80 (24.4)	182	412	767	1,297	1,996	1,084	2,267
90	171	386	719	1,217	1,873	1,017	2,127
100 (30.5)	161	365	679	1,149	1,769	961	2,009
150 (45.7)	130	293	546	923	1,421	772	1,613
200 (61)	111	251	467	790	1,216	660	1,381
250	90	222	414	700	1,078	585	1,224
300	89	201	378	634	976	530	1,109
350	82	185	345	584	898	488	1,020
400	76	172	321	543	836	454	949

To convert to capacities at 15 psig settings—multiply by 1.13. To convert to capacities at 5 psig settings—multiply by 0.879.

Sizing Between Single or 2nd Stage Regulator and Appliance*

Maximum propane capacities listed are based on ½" W.C. pressure drop at 11" W.C. setting. Capacities in 1,000 Btu/h.

Propane Gas Piping Chart II										
Pipe or Tubing Length—ft (m)	Tubing Size, O.D. Type L					Nominal Pipe Size Schedule 40				
	¾"	½"	⅝"	¾"	⅞"	½"	¾"	1"	1¼"	1½"
10 (3)	49	110	206	348	539	291	608	1,146	2,353	3,525
20 (6.1)	34	76	141	239	368	200	418	788	1,617	2,423
30 (9.2)	27	61	114	192	296	161	336	632	1,299	1,946
40 (12.2)	23	52	97	164	253	137	284	541	1,111	1,665
50 (15.2)	20	46	86	146	224	122	255	480	985	1,476
60 (18.3)	19	42	78	132	203	110	231	436	892	1,337
80 (24.4)	16	36	67	113	174	94	198	372	764	1,144
100 (30.5)	14	32	59	100	154	84	175	330	677	1,014
125 (38.1)	12	28	52	89	137	74	155	292	600	899
150 (45.7)	11	26	48	80	124	67	141	265	544	815
200 (61)	10	22	41	69	106	58	120	227	465	697
250 (76.2)	9	19	36	61	94	51	107	201	412	618
300	8	18	33	55	85	46	97	182	374	560
350	7	16	30	51	78	43	89	167	344	515
400	7	15	28	47	73	40	83	156	320	479

Data in accordance with NFPA pamphlet Number 54.



WARNING

To prevent property damage or serious personal injury due to fire or explosion caused by a propane gas leak, install a gas detecting warning device.

If the propane gas unit is installed in an excavated area or a confined space, a warning device is required due to:

- Propane gas is heavier than air and any leaking gas can settle in any low areas or confined spaces.
- Propane gas odorant may fade, making the gas undetectable except with a warning device.

Rollout Protection Control

The rollout protection device opens, cutting power to the gas control valve, if the flames from the burners are not properly drawn into the heat exchanger. The rollout protection device is located on the burner bracket. The reason for elevated temperatures at the control should be determined and repaired prior to resetting this manual reset control.



WARNING

To avoid property damage, personal injury or death due to fire or explosion, a qualified servicer must investigate the reason for the rollout protection device to open before manually resetting the rollout protection device.

Start-up, Adjustments and Checks

Heating Start-up

This unit is equipped with an electronic ignition device to automatically light the main burners. It also has a power vent blower to exhaust combustion products.

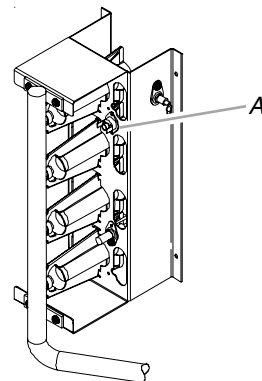
On new installations, or if a major component has been replaced, the operation of the unit must be checked.

Check unit operation as outlined in the following instructions. If any sparking, odors or unusual sounds are encountered, turn off electrical power and recheck for wiring errors or obstructions in or near the blower motors. Duct covers must be removed before operating unit.

Heat Anticipator Setting

Set the heat anticipator on the room thermostat to 0.4 amps to obtain the proper number of heating cycles per hour and to prevent the room temperature from overshooting the room thermostat setting.

Rollout Protection on Burner Bracket



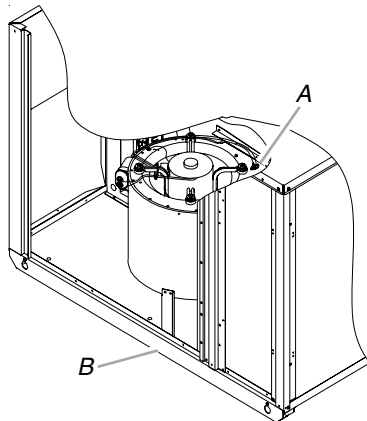
A. Rollout protection

Secondary Limit Control

The secondary limit control is located on the top of the blower scroll assembly. This control opens when elevated temperatures are sensed. Elevated temperatures at the control are normally caused by blower failure. The reason for the opening should be determined and repaired prior to resetting.

If the power to the unit is interrupted during the heating cycle, it may cause the secondary limit control to trip. Once the blower compartment temperature drops below the limit reset temperature, the limit will automatically reset.

Secondary Limit Control



A. Secondary limit control
B. Back of unit

Pre-Operation Checks

1. Close the manual gas shutoff valve external to the unit.
2. Turn off the electrical power supply to the unit.
3. Set the room thermostat to its lowest possible setting.
4. Remove the heat exchanger door on the side of the unit by removing the screws.

IMPORTANT: This unit is equipped with an ignition device which automatically lights the main burner. Do not try to light burner by any other method.

5. Move the gas control valve switch to the OFF position.

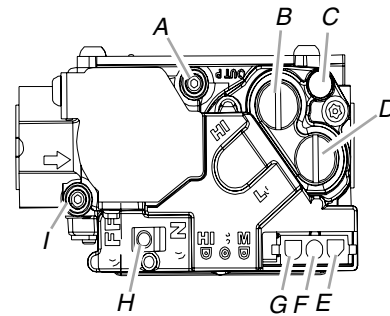
NOTE: Do not force the switch to turn.

6. Wait 5 minutes to clear out any gas.
7. Check for a gas odor around the unit, including near the ground because some types of gas are heavier than air.

IMPORTANT: If you have waited 5 minutes and you do smell gas, immediately leave the building and call your gas supplier or the fire department from a neighbor's house.

8. If you have waited 5 minutes and there is no gas odor, move the gas control valve switch to the On position.
9. Replace the heat exchanger door on the side of the unit.
10. Open the manual gas shutoff valve external to the unit.
11. Turn on the electrical power supply to the unit.
12. Set the thermostat to the desired setting.

Gas Control Valve—White-Rodgers 35G54



- | | |
|-------------------------------------|---------------------------------|
| A. Outlet pressure boss | F. Common terminal (C) |
| B. High-fire regulator adjust tower | G. High-fire coil terminal (HI) |
| C. Regulator vent | H. On/Off switch |
| D. Low-fire regulator adjust tower | I. Inlet pressure boss |
| E. Coaxial coil terminal (M) | |

Gas Manifold Pressure Measurement and Adjustment

Gas Supply And Manifold Check

Gas supply pressure and manifold pressure with the burners operating must be as specified on the rating plate.

Gas Inlet Pressure Check

Gas inlet pressure must be checked and adjusted in accordance to the type of fuel being consumed.

With Power And Gas Off:

1. Connect a water manometer or adequate gauge to the inlet pressure tap of the gas control valve. Inlet gas pressure can also be measured by removing the cap from the dripleg and installing a predrilled cap with a hose fitting.

With Power And Gas On:

2. Put unit into heating cycle and turn on all other gas consuming appliances.

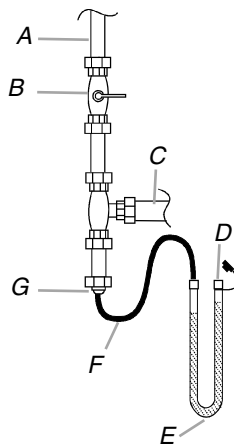
Inlet Gas Supply Pressure

Natural Gas	Minimum: 5.0" W.C. Maximum: 10.0" W.C.
Propane Gas	Minimum: 11.0" W.C. Maximum: 13.0" W.C.

NOTE: Inlet gas pressure must not exceed the maximum value shown.

If operating pressures differ from the Inlet Gas Supply Pressure chart, make necessary pressure regulator adjustments, check piping size, etc., and/or consult with local utility.

Measuring Inlet Gas Pressure Alternate Method



- A. Gas supply line
B. Gas shutoff valve
C. Gas supply line to furnace
D. Open to atmosphere
E. Manometer
F. Manometer hose
G. Dripleg cap with fitting

Manifold Pressure Check

1. Turn off gas supply to furnace at the manual gas shutoff valve external to the furnace.
2. Disconnect all electrical power to the system.
3. Loosen outlet pressure test screw (inlet/outlet pressure boss) 1 turn.
NOTE: Turn counterclockwise, and not more than 1 turn.
4. Connect a calibrated water manometer and $\frac{5}{16}$ " hose to the outlet pressure boss on the gas control valve. The hose should overlap by $\frac{3}{8}$ " (1 cm).
5. Turn on the gas supply.
6. Reconnect all electrical power to the system.
7. Turn on the system power and energize the main (M) solenoid.
NOTE: Do not energize the HI solenoid.
8. Measure the gas manifold pressure with the burners firing.
9. Adjust manifold pressure using the Manifold Gas Pressure chart.

Manifold Gas Pressure

Gas		Range	Nominal
Natural Gas	Low Stage	1.6" to 2.2" W.C.	2.0" W.C.
	High Stage	3.2" to 3.8" W.C.	3.5" W.C.
Propane Gas	Low Stage	5.7" to 6.3" W.C.	6.0" W.C.
	High Stage	9.7" to 10.3" W.C.	10.0" W.C.

10. Remove the regulator cover screw from the low-fire (LO) regulator adjust tower and turn the screw clockwise to increase pressure, or counterclockwise to decrease pressure.
11. Energize the main (M) solenoid as well as the HI terminal.

12. Remove the regulator cover screw from the high-fire (HI) regulator adjust tower, and turn the screw clockwise to increase pressure, or counterclockwise to decrease pressure.
13. Disconnect all electrical power, and turn off the gas supply to the system.
14. Remove the manometer hose from the outlet pressure boss.
15. Tighten (clockwise, 7 in.-lb minimum) the outlet pressure test screw to seal the pressure port.
16. Reconnect the electrical power, and turn on the gas supply to the system.
17. Turn on the system power and energize valve.
18. Using a leak detection solution or non-chlorine soap suds, check for leaks at the hose connection.
IMPORTANT: Bubbles forming indicate a leak. Turn off gas immediately and fix all leaks.

NOTE: For gas-to-gas conversion, consult your dealer for the appropriate conversion.

Gas Input Check—Natural Gas Only

To measure the gas input, use a gas meter and proceed as follows:

1. Turn off the gas supply to all other appliances except the unit.
2. With the unit operating, time the smallest dial on the meter for 1 complete revolution. If this is a 2 cu ft dial, divide the seconds by 2; if it is a 1 cu ft dial, use the seconds as is. This gives the seconds per cubic foot of gas being delivered to the unit.
3. Input = Gas Heating Value x 3,600 / Sec. Per Cubic Foot
Example: Natural gas with a heating value of 1,000 Btu per cubic foot and 34 seconds per cubic foot as determined by Step 2, then:
Input = 1,000 x 3,600 / 34 = 106,000 Btu/h.
NOTE: Btu content of the gas should be obtained from the gas supplier. This measured input must not be greater than shown on the unit rating plate.
4. Turn on the gas supply to all other appliances turned off in Step 1. Check that all pilot burners are operating.

Main Burner Flame Check

Flames should be stable, soft and blue (dust may cause orange tips, but they must not be yellow) and extending directly outward from the burner without curling, floating or lifting off.

Measure Temperature Rise

Check the temperature rise through the unit by placing thermometers in supply and return air registers as close to the unit as possible. Thermometers must not be able to sample temperature directly from the unit heat exchangers, or false readings could be obtained.

1. All registers must be open; all duct dampers must be in their final (fully or partially open) position and the unit operated for 15 minutes before taking readings.

2. The temperature rise must be within the range specified on the rating plate.

NOTE: Air temperature rise is the temperature difference between supply and return air.

With a properly designed system, the proper amount of temperature rise will normally be obtained when the unit is operated at the rated input with the recommended blower speed.

If the correct amount of temperature rise is not obtained, it may be necessary to change the blower speed. A higher blower speed will lower the temperature rise. A slower blower speed will increase the temperature rise.

NOTE: Blower speed must be set to give the correct air temperature rise through the unit as marked on the rating plate.

External Static Pressure Check

The total external static pressure must be checked on this unit to determine if the airflow is proper.

Blower Speed Adjustments

Refer to the wiring diagram in “Troubleshooting” to verify the speed tap settings.

Depending upon the model, blower speeds are changed at the indoor blower. The ignition control board has 4 blower speeds: Low Heat, High Heat, Low Cool and High Cool.

NOTE: Fan Only energizes at Low Heat speed.

The WGGE45 models are equipped with X-13 motors. X-13 motors are constant torque motors with very low power consumption. This motor is energized by 24VAC. Adjust the CFM for the unit by changing the 24VAC leads to the speed terminal block on the motor.

Heating			Cooling		
Speed Tap	Definition	Lead Color	Speed Tap	Definition	Lead Color
T1	Low Speed Heat	White	T3	Low Speed Cool	Purple
T2	High Speed Heat	Brown	T4	High Speed Cool	Yellow
			T5	High Speed Cool High-Static	

NOTE: Heating airflow must be adjusted to provide the temperature rise shown on the rating plate. A higher speed tap may not provide more airflow. Blower speeds are programmed to deliver adequate airflow at rated external static pressure (ESP). Refer to airflow table provided in the Product Data Book applicable to your model for details.

Blower Performance Data

WGGE4524A070M—Rise Range: 35° to 65°

		Unit Static							
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
T1—1 st -Stage Heating Speed	CFM	742	677	631	575	526	-	-	-
	Watts	84	89	97	101	111	-	-	-
	Amps	0.75	0.82	0.90	0.92	1.01	-	-	-
	Rise	52	57	62	X	X	-	-	-
T2—2 nd -Stage Heating Speed	CFM	907	857	814	761	727	678	-	-
	Watts	134	140	149	154	165	169	-	-
	Amps	1.18	1.24	1.32	1.33	1.41	1.47	-	-
	Rise	57	61	64	X	X	X	-	-
T3—Cooling Speed	CFM	857	816	760	721	670	629	-	-
	Watts	116	126	131	140	145	155	-	-
	Amps	1.04	1.16	1.18	1.25	1.31	1.39	-	-
T4—Cooling Speed	CFM	907	857	814	761	727	678	-	-
	Watts	134	140	149	154	165	169	-	-
	Amps	1.18	1.24	1.32	1.33	1.41	1.47	-	-
T5—Cooling Speed	CFM	1,040	988	949	903	871	824	-	-
	Watts	185	198	208	213	222	228	-	-
	Amps	1.33	1.40	1.42	1.49	1.55	1.58	-	-

WGGE4530A090M—Rise Range: 45° to 75°

		Unit Static							
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
T1—1 st -Stage Heating Speed	CFM	1,065	1,003	961	913	855	814	749	713
	Watts	168	174	185	195	202	212	218	227
	Amps	1.42	1.48	1.55	1.62	1.69	1.76	1.82	1.87
	Rise	49	52	54	57	60	63	69	72
T2—2 nd -Stage Heating Speed	CFM	1,255	1,217	1,165	1,113	1,073	1,018	991	-
	Watts	257	269	274	285	296	302	313	-
	Amps	2.10	2.19	2.21	2.30	2.36	2.41	2.48	-
	Rise	55	57	59	62	64	68	70	-
T3—Cooling Speed	CFM	1,148	1,092	1,044	994	929	811	763	715
	Watts	170	176	184	194	210	222	224	236
	Amps	1.55	1.66	1.72	1.77	1.89	1.99	2.03	2.07
T4—Cooling Speed	CFM	1,148	1,092	1,044	994	929	811	763	715
	Watts	170	176	184	194	210	222	224	236
	Amps	1.55	1.66	1.72	1.77	1.89	1.99	2.03	2.07
T5—Cooling Speed	CFM	1,333	1,293	1,237	1,193	1,158	1,101	-	-
	Watts	304	314	321	333	341	345	-	-
	Amps	2.41	2.48	2.54	2.71	2.77	2.78	-	-

WGGE4537A090M—Rise Range: 45° to 75°

		Unit Static							
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
T1—1 st - Stage Heating Speed	CFM	1,065	1,003	961	913	855	814	749	713
	Watts	168	174	185	195	202	212	218	227
	Amps	1.42	1.48	1.55	1.62	1.69	1.76	1.82	1.87
	Rise	49	52	54	57	60	63	69	72
T2—2 nd - Stage Heating Speed	CFM	1,255	1,217	1,165	1,113	1,073	1,018	991	-
	Watts	257	269	274	285	296	302	313	-
	Amps	2.10	2.19	2.21	2.30	2.36	2.41	2.48	-
	Rise	55	57	59	62	64	68	70	-
T3— Cooling Speed	CFM	1,148	1,092	1,044	994	929	811	763	715
	Watts	170	176	184	194	210	222	224	236
	Amps	1.55	1.66	1.72	1.77	1.89	1.99	2.03	2.07
T4— Cooling Speed	CFM	1,148	1,092	1,044	994	929	811	763	715
	Watts	170	176	184	194	210	222	224	236
	Amps	1.55	1.66	1.72	1.77	1.89	1.99	2.03	2.07
T5— Cooling Speed	CFM	1,418	1,375	1,316	1,279	1,245	1,193	-	-
	Watts	360	371	376	387	392	400	-	-
	Amps	2.92	3.00	3.05	3.13	3.19	3.22	-	-

WGGE4542A115M—Rise Range: 45° to 75°

		Unit Static							
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
T1—1 st - Stage Heating Speed	CFM	1,065	1,003	961	913	855	814	749	713
	Watts	168	174	185	195	202	212	218	227
	Amps	1.42	1.48	1.55	1.62	1.69	1.76	1.82	1.87
	Rise	49	52	54	57	60	63	69	72
T2—2 nd - Stage Heating Speed	CFM	1,255	1,217	1,165	1,113	1,073	1,018	991	-
	Watts	257	269	274	285	296	302	313	-
	Amps	2.10	2.19	2.21	2.30	2.36	2.41	2.48	-
	Rise	55	57	59	62	64	68	70	-
T3— Cooling Speed	CFM	1,335	1,274	1,204	1,136	1,069	1,009	946	886
	Watts	260	268	281	287	300	312	319	331
	Amps	1.01	1.04	1.10	1.11	1.15	1.19	1.22	1.27
T4— Cooling Speed	CFM	1,468	1,412	1,346	1,275	1,221	1,170	1,105	1,042
	Watts	337	349	359	363	370	386	397	406
	Amps	1.28	1.33	1.37	1.40	1.44	1.47	1.52	1.54
T5— Cooling Speed	CFM	1,619	1,560	1,504	1,441	1,380	1,325	1,268	1,198
	Watts	431	445	456	463	475	489	495	502
	Amps	1.64	1.69	1.71	1.76	1.80	1.84	1.88	1.90

WGGE4549A115M—Rise Range: 45° to 75°

		Unit Static							
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
T1—1 st - Stage Heating Speed	CFM	1,140	1,090	1,038	980	914	852	806	741
	Watts	178	188	199	212	220	231	242	248
	Amps	1.52	1.57	1.67	1.76	1.79	1.90	1.97	2.01
	Rise	56	59	62	65	70	75	X	X
T2—2 nd - Stage Heating Speed	CFM	1,417	1,374	1,322	1,273	1,224	1,176	1,121	1,068
	Watts	305	318	327	338	352	365	379	391
	Amps	2.46	2.56	2.68	2.72	2.82	2.88	2.93	2.98
	Rise	61	63	65	68	70	73	X	X
T3—1 st - Stage Cooling Speed	CFM	1,468	1,412	1,346	1,275	1,221	1,170	1,105	1,042
	Watts	337	349	359	363	370	386	397	406
	Amps	1.28	1.33	1.37	1.40	1.44	1.47	1.52	1.54
T4— 2 nd - Stage Cooling Speed	CFM	1,468	1,412	1,346	1,275	1,221	1,170	1,105	1,042
	Watts	337	349	359	363	370	386	397	406
	Amps	1.28	1.33	1.37	1.40	1.44	1.47	1.52	1.54
T5— Cooling Speed	CFM	1,696	1,650	1,608	1,566	1,523	1,480	1,441	-
	Watts	503	517	530	543	556	569	580	-
	Amps	4.04	4.15	4.25	4.39	4.43	4.55	4.65	-

WGGE4560A140M—Rise Range: 45° to 75°

		Unit Static							
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
T1—1 st - Stage Heating Speed	CFM	1,773	1,713	1,693	1,653	1,597	1,534	1,485	-
	Watts	488	501	509	518	529	541	522	-
	Amps	3.64	3.73	3.78	3.84	3.91	3.99	40.9	-
	Rise	X	45	45	46	48	50	52	-
T2—2 nd - Stage Heating Speed	CFM	1,773	1,713	1,693	1,653	1,597	1,534	1,485	-
	Watts	488	501	509	518	529	541	522	-
	Amps	3.64	3.73	3.78	3.84	3.91	3.99	40.9	-
	Rise	58	61	61	63	65	68	70	-
T3—1 st - Stage Cooling Speed	CFM	1,379	1,322	1,268	1,187	1,133	1,068	1,026	-
	Watts	246	258	266	280	287	294	307	-
	Amps	1.95	2.03	2.10	2.19	2.23	2.29	2.38	-
T4— 2 nd - Stage Cooling Speed	CFM	1,919	1,862	1,810	1,755	1,705	1,647	-	-
	Watts	700	714	720	734	743	748	-	-
	Amps	4.81	4.94	5.01	5.07	5.09	5.16	-	-
T5— Cooling Speed	CFM	2,115	2,078	2,009	1,953	1,933	-	-	-
	Watts	783	787	802	813	805	-	-	-
	Amps	5.54	5.57	5.67	5.87	5.77	-	-	-

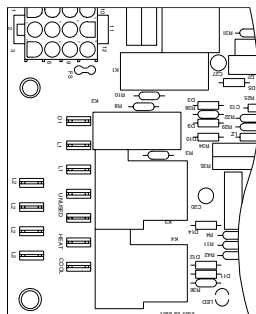
Limit Check

Check the limit control operation after 15 minutes of operation.

1. Block the return air grille(s).
2. After several minutes, the main burners must go off. The circulating air blower will continue to run.
3. Remove air restrictions and main burners will relight after a cool down period of a few minutes.
4. Adjust the thermostat setting below room temperature.
5. The main burners must go off.
6. The circulating air blower will continue to run for 120, 135 or 150 seconds, depending on the setting.

NOTE: On the WGGE4348,60 model only, the circulating air blower will continue to run for 180 seconds.

Control Board—Top



NOTE: If necessary, adjust the fan off-delay settings to obtain satisfactory comfort level.



WARNING

This unit must not be used as a “construction heater” during the finishing phases of construction on a new structure. This type of use may result in premature failure of the unit due to extremely low return air temperatures and exposure to corrosive or very dirty atmospheres.

Unit Shutdown

1. Set the thermostat to the lowest setting.
2. Turn off the electrical power supply to the unit.
3. Remove the heat exchanger door on the side of the unit by removing the screws.
4. Move the gas control valve switch to the OFF position.
NOTE: Do not force.
5. Close the manual gas shutoff valve external to the unit.
6. Replace the heat exchanger door on the unit.
7. If cooling and/or air circulation will be desired, turn on the electrical power.

Cooling Start-Up

NOTE: Check all manual reset limit controls in the heating circuit if the cooling mode does not operate.

Compressor Protection Devices

The compressor includes components which are designed to protect the compressor against abnormal operating conditions.



WARNING

To prevent property damage, personal injury or death, due to fire, explosions, smoke, soot, condensation, electric shock or carbon monoxide, this unit must be properly installed, repaired, operated and maintained.

Refrigerant Charge Check—Units with Fixed Orifice Devices

After completing the airflow measurements and adjustments, the unit's refrigerant charge must be checked. The unit comes factory charged, but this charge is based on 325 CFM per ton and minimum ESP per ARI test conditions (generally between 0.15 to 0.25 ESP). When air quantity or ESP is different than above, the refrigerant charge must be adjusted to the proper amount.

All package units with fixed orifice devices are charged using the superheat method at the compressor suction line.

For charging in the warmer months, $8^{\circ}\text{F} \pm 3^{\circ}\text{F}$ superheat at the compressor is required at conditions 95°F (35°C) outdoor ambient (dry bulb) temperature, 80°F (27°C) dry bulb / 67°F (19°C) wet bulb indoor ambient temperature, approximately 50% humidity. This superheat varies when conditions vary from the conditions described.

After superheat is adjusted, it is recommended that subcooling be checked at the condenser coil liquid line out. In most operating conditions 10°F to 15°F of subcooling is adequate.

Cooling Refrigerant Charging—Models with TXV

Check the unit charge before putting the cooling section into full operation. The unit is factory-charged with R-410A for nominal airflow and static pressure conditions. The unit has a thermostatic expansion valve (TXV) metering device. To ensure that the unit is properly charged for the intended application, check the unit refrigerant subcooling at the condenser. The refrigerant subcooling is a function of outdoor ambient temperature and return air temperature of the conditioned space. It is the installing contractors responsibility to ensure that the proper refrigerant subcooling at the condenser is adjusted for each application. For example, 10°F refrigerant subcooling level is adequate for a 95°F (35°C) outdoor ambient temperature and for a 78°F to 80°F (26°C to 27°C) indoor return air temperature. As the outdoor ambient temperature rises, the subcooling decreases, and as the outdoor ambient temperature lowers, the subcooling increases.

NOTE: Proper subcooling adjustment optimizes cooling performance.

On models equipped with a thermostatic expansion valve, charge the system to 10° of subcooling. When necessary, adjust the expansion valve stem for superheat setting.

NOTE: The expansion valve will not need adjustment for most applications. Check that the system superheat is set between 12°F and 15°F after final adjustment.

Superheat Adjustment

1. To adjust superheat, remove the control box cover and locate the expansion valve on the liquid line of the evaporator.
 2. Unscrew the cover from the expansion valve
 3. Locate the adjustment screw, and turn it clockwise (in) to increase superheat or counterclockwise (out) to decrease superheat.
-

4. Replace the adjustment cap.
5. Wait a minimum of 10 minutes between adjustments to allow time for the TXV and pressures to stabilize.

Cooling Operation

NOTE: Mechanical cooling cannot be reliably provided at ambient temperatures below 50°F (10°C).

1. Turn on the electrical power supply to the unit.
 2. Place the room thermostat selector switch in the COOL position (or AUTO if available, and if automatic changeover from cooling to heating is desired).
 3. Set the room thermostat to the desired temperature.
-

SEQUENCE OF OPERATION

Heating System

This unit is equipped with an ignition control that automatically lights the main burner.

NOTE: Do not attempt to light the main burners by any other method.

1. Thermostat calls for low-stage or high-stage heating.
2. The induced draft blower energizes for a 15-second pre-purge.
3. The spark igniter and low-stage and high-stage gas control valves energizes for 7 seconds.

NOTE: The igniter produces a very intense electrical spark that ignites the gas.

4. The main burners light, and the control detects the presence of a flame.
5. If the call is for low-stage heat, the induced draft blower switches to low speed and the high-stage gas control valve closes 5 seconds after the main burners light. If the call is for high-stage heat, the induced draft blower remains at high speed and the high-stage gas control valve remains open.

NOTE: If a single-stage thermostat is used, the control will step to low stage after the main burners light and remain at low stage for 5 or 10 minutes, depending on the jumper position. If the call for heat remains after the transition delay time expires, the control will transition from low stage to high stage.

6. The 30-second Heat Fan On delay time begins after the main burners light.
7. The unit delivers heat to the conditioned space until the thermostat is satisfied.
8. The gas control valve(s) de-energizes.
9. The induced draft blower continues operation for a 30-second post-purge.
10. The induced draft blower remains at low speed (or switches from high to low, if operating at high stage heat) for the 30-second post-purge.

11. Ignition control begins timing the Heat Fan Off delay.

There is an adjustable Heat Fan Off delay of approximately 90/120/150/180 seconds (factory set at 150). If the unit is operating at high stage when the call for heat is removed, the blower will operate for 30 seconds at high-heat speed, and then switch to low-heat speed for the remainder of the selected Heat Fan Off delay.

After the Heat Fan Off delay time has elapsed, the induced draft blower will de-energize. This allows any additional heat in the heat exchanger to be transferred to the conditioned space.

Cooling System

1. The thermostat calls for low- or high-stage cooling.
2. If the thermostat call is for low-stage cooling, the compressor and outdoor fan are energized at low stage. If the thermostat call is for high-stage cooling, the compressor and outdoor fan are energized at high-stage cooling.
3. Approximately 6 seconds later, the indoor blower fan will energize.
4. The unit will deliver cooling to the conditioned space until the thermostat is satisfied.
5. The compressor and outdoor fan will be de-energized when the thermostat opens.
6. The indoor blower fan continues to run at low-cool speed for approximately 60 seconds after the thermostat is satisfied. This allows additional cooling from the indoor coil to be transferred to the conditioned space. Then, the indoor blower fan is de-energized.

NOTE: A 180-second anti-short cycle is integral to the control and prevents recycling of the compressor.

Fan Only

1. The thermostat calls for Fan Only by energizing “G.”
 2. Immediately, the indoor blower fan is energized at the low-heat speed.
 3. The indoor blower fan is immediately de-energized once the thermostat call for Fan Only is removed.
-

Cooling Start-Up

NOTE: Check all manual reset limit controls in heating circuit if cooling mode does not operate.

Compressor Protection Devices

The compressor includes components which are designed to keep the compressor from abnormal operating conditions.



WARNING

To prevent personal injury or death, always disconnect electrical power before inspecting or servicing the unit. All compressor protection devices reset automatically, energizing the contactor and outdoor fan.

Refrigerant Charge Check—Units with Fixed Orifice Devices

After completing the airflow measurements and adjustments, the unit's refrigerant charge must be checked. The unit comes factory charged, but this charge is based on 325 CFM per ton and minimum ESP per ARI test conditions (generally between 0.15 to 0.25 ESP). When air quantity or ESP is different than above, the refrigerant charge must be adjusted to the proper amount.

All package units with fixed orifice devices are charged using the superheat method at the compressor suction line.

For charging in the warmer months, 8°F ± 3°F superheat at the compressor is required at conditions 95°F (35°C) outdoor ambient (dry bulb) temperature, 80°F (27°C) dry bulb / 67°F (19°C) wet bulb indoor ambient temperature, approximately 50% humidity. This superheat varies when conditions vary from the conditions described.

After superheat is adjusted, it is recommended that subcooling be checked at the condenser coil liquid line out. In most operating conditions 10°F to 15°F of subcooling is adequate.

Cooling Refrigerant Charging—Models with TXV

Check the unit charge before putting the cooling section into full operation. The unit is factory-charged with R-410A for nominal airflow and static pressure conditions. The unit has a thermostatic expansion valve (TXV) metering device. To ensure that the unit is properly charged for the intended application, check the unit refrigerant subcooling at the condenser. The refrigerant subcooling is a function of outdoor ambient temperature and return air temperature of the conditioned space. It is the installing contractors responsibility to ensure that the proper refrigerant subcooling at the condenser is adjusted for each application. For example, 10°F refrigerant subcooling level is adequate for a 95°F (35°C) outdoor ambient temperature and for a 78°F to 80°F (26°C to 27°C) indoor return air temperature. As the outdoor ambient temperature rises, the subcooling decreases, and as the outdoor ambient temperature lowers, the subcooling increases.

NOTE: Proper subcooling adjustment optimizes cooling performance.

On models equipped with a thermostatic expansion valve, charge the system to 10° of subcooling. When necessary, adjust the expansion valve stem for superheat setting.

NOTE: The expansion valve will not need adjustment for most applications. Check that the system superheat is set between 12°F and 15°F after final adjustment.

Superheat Adjustment

1. To adjust superheat, remove the control box cover and locate the expansion valve on the liquid line of the evaporator.
 2. Unscrew the cover from the expansion valve
 3. Locate the adjustment screw, and turn it clockwise (in) to increase superheat or counterclockwise (out) to decrease superheat.
 4. Replace the adjustment cap.
 5. Wait a minimum of 10 minutes between adjustments to allow time for the TXV and pressures to stabilize.
-

Cooling Operation

NOTE: Mechanical cooling cannot be reliably provided at ambient temperatures below 50°F (10°C).

1. Turn on the electrical power supply to the unit.
2. Place the room thermostat selector switch in the COOL position (or AUTO if available, and if automatic changeover from cooling to heating is desired).
3. Set the room thermostat to the desired temperature.

MAINTENANCE



WARNING

HIGH VOLTAGE!

Disconnect ALL power before servicing.

Multiple power sources may be present.

Failure to do so may cause property damage, personal injury or death.



Have the gas heating section of the unit checked at least once a year before the heating season begins, to be sure that the combustion air inlet and flue outlet hoods are not blocked by debris, which would block adequate combustion air and keep the vent system from operating properly.

Filter Replacement or Cleaning

A return air filter is not supplied with this unit; however, there must be a means of filtering all of the return air. The filter(s) may be located in the return air duct(s), or return air filter grille(s). Consult with your installing dealer for the actual location of the return air filter(s) for your unit.

Dirty filters are the most common cause of inadequate heating or cooling performance. Filter inspection should be made at least every 2 months; more often if necessary because of local conditions and usage.

Dirty throwaway filters should be discarded and replaced with a new, clean filter. Dirty permanent filters should be washed with water, thoroughly dried and sprayed with a filter adhesive before being reinstalled. (Filter adhesives may be found at many hardware stores.) Permanent filters should last several years. However, should one become torn or uncleanable, it should be replaced.

Cabinet Finish Maintenance

Use a fine grade automotive wax on the cabinet finish to maintain the finish's original high luster. This is especially important in installations with extended periods of direct sunlight.

Clean Outside Coil—Qualified Servicer Only

The coil with the outside air flowing over it should be inspected annually and cleaned as frequently as necessary to keep the finned areas free of lint, hair and debris.

Condenser, Evaporator and Induced Draft Motors

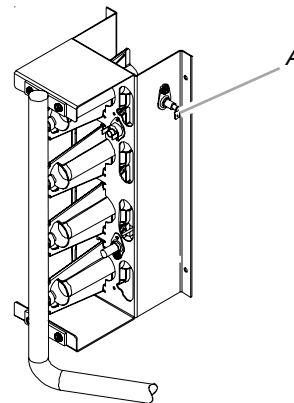
Bearings on the air circulating blower motor, condenser motor and the combustion fan motor are permanently lubricated. No additional oiling is required.

Flame Sensor (Qualified Servicer Only)

A drop in the flame current can be caused by a nearly invisible coating on the flame sensor. This coating, created by the fuel or combustion air supply, can be removed by gently cleaning the flame sensor with steel wool.

NOTE: After cleaning, the microamp signal should be stable and in the range of 4 to 6 microamps DC.

Flame Sensor



A. Flame sensor

Flue Passages—Qualified Servicer Only

At the start of each heating season, inspect and, if necessary, clean the unit flue passage.

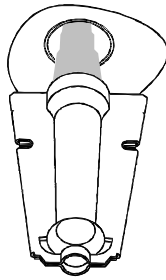
Cleaning Flue Passages—Qualified Servicer Only

1. Disconnect the electric power and gas supply to the unit.
2. Remove the burner assembly by disconnecting the gas line and removing the manifold bracket from the partition panel.
3. Remove the flue from the induced draft blower and the collector box cover from the partition panel.
4. The primary heat exchanger tubes can be cleaned using a round wire brush attached to a length of high grade stainless steel cable, such as drain cleanout cable. Attach a variable speed reversible drill to the other end of the spring cable.
5. Slowly rotate the cable with the drill and insert it into one of the primary heat exchanger tubes.
6. While reversing the drill, work the cable in and out several times to obtain sufficient cleaning.
7. Use a large cable for the large tube, and then repeat the operation with a small cable for the smaller tube. Repeat for each tube.
8. When all heat exchanger tubes have been cleaned, replace the parts in the reverse order in which they were removed.
9. To reduce the chances of repeated fouling of the heat exchanger, perform the steps listed in "Start-Up, Adjustments and Checks."

Main Burner Flame—Qualified Servicer Only

Flames should be stable, soft and blue (dust may cause orange tips but must not be yellow). The flames must extend directly outward from the burner without curling, floating or lifting off.

Burner Flame



Check the burner flames for good adjustment, a stable, soft and blue flame that is not curling, floating or lifting off.

WARNING

To avoid personal injury or death due to electrical shock, do not remove any internal compartment covers or attempt any adjustment. Contact a qualified servicer at once if an abnormal flame should develop.

At least once a year, prior to or during the heating season, make a visual check of the burner flames.

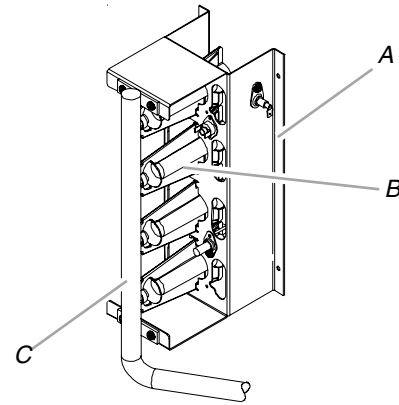
NOTE: This will involve removing and reinstalling the heat exchanger door on the unit, which is held by 2 screws. If you are uncertain about your ability to do this, contact a qualified servicer.

If a strong wind is blowing, it may alter the airflow pattern within the unit enough that an inspection of the burner flames is not possible.

Cleaning Burners

1. Disconnect the electric power and gas supply to the unit.
2. Remove the screws securing the manifold to the burner retention bracket. Remove the manifold and rotate each burner counterclockwise to remove.

Manifold Assembly



A. Burner bracket
B. Burner
C. Manifold

3. Remove the burners.
4. Use a bottle brush to clean burner insert and inside of the burners.
5. Replace the burners and manifold.
6. Inspect the burner assembly for proper seating of burners in retention slots.
7. Reconnect the electrical power and gas supply.

CAUTION

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

CAUTION

Always verify proper operation after servicing.

For further information on the yearly inspection, consult the User Manual. It is recommended that a qualified servicer inspect and service the unit at least once each year.

Turn the unit on at the thermostat. Wait a few minutes, since any dislodged dust will alter the normal flame appearance. Flames should be predominantly blue and directed into the tubes. They should not be yellow. They should extend directly outward from the burner ports without curling downward, floating or lifting off of the ports.

TROUBLESHOOTING

Unit Fails to Operate Properly

Review "Sequence of Operation" and visually inspect the following before troubleshooting:

WARNING

HIGH VOLTAGE!

Disconnect ALL power before servicing.

Multiple power sources may be present.

Failure to do so may cause property damage, personal injury or death.



Ignition Control Error Codes

The following presents probable causes of questionable unit operation.

Remove the control box access panel and note the number of diagnostic status light LED flashes. Refer to Diagnostic Indicator Chart for an interpretation of the signal and to this section for an explanation.

Diagnostic Indicator Chart

The status light on the unit control may be used as a guide to troubleshooting the appliance.

Diagnostic LED—Red	Status	Check
On	■ Normal Operation	-
Off	■ No power	■ Input power
	■ Internal control fault	■ Fuse(s) on control ■ Replace control
1 flash	■ Ignition failure	■ Gas flow ■ Gas pressure ■ Gas control valve ■ Flame sensor
2 flashes	■ Pressure switch open	■ Pressure switch ■ Tubing ■ Vent motor
3 flashes	■ Pressure switch closed without inducer on	■ Pressure switch ■ Wiring for shorts
4 flashes	■ Open limit switch	■ Main limit switch ■ Auxiliary limit switch ■ Rollout limit switch
5 flashes	■ False flame detected	■ Gas control valve ■ Shorts in flame sensor wiring
6 flashes	■ Compressor short-cycle delay	■ 3 minute compressor short-cycle timer
7 flashes	■ Limit switch open 5 times in same call for heat	■ Main limit switch ■ Auxiliary limit switch
8 flashes	■ IDT/ODT open	■ Jumper between 1 and 4 on 6-circuit connector ■ Optional refrigerant switches
9 flashes	■ PSW/LOC open	■ Refrigerant switches for loss or charge or high-head pressure

Diagnostic LED—Amber	Status	Check
Off	■ No flame present	-
On	■ Normal flame present	-
1 flash	■ Low flame signal	■ Gas flow ■ Gas pressure ■ Gas control valve ■ Flame sensor
2 flashes	■ False flame detected	■ Gas control valve ■ Shorts in flame sensor wiring

Fault Recall

The ignition control is equipped with a momentary pushbutton switch that can be used to display on the diagnostic LED the last 5 faults detected by the control. The control must be in Standby Mode (no thermostat inputs) to use the feature.

- Depress the pushbutton switch for approximately 2 seconds.
NOTE: Do not hold for longer than 4 seconds. Holding the button for 4 seconds or longer will erase the memory.
- Release the switch when the LED is turned off. The diagnostic LED will then display the flash codes associated with the last 5 detected faults. The order of display is the most recent fault to the least recent fault.

Abnormal Operation—Heating

Internal Control Failure—Status Light Off

If the integrated ignition control in this unit encounters an internal fault, it will go into a “hard” lockout and turn off the diagnostic LED.

If diagnostic LED indicates an internal fault,

- Check the power supply to unit for proper voltage.
- Check all fuses, circuit breakers and wiring.
- Disconnect electric power for 5 seconds. If LED remains off after restoring power, replace control.

External Lockout—1 Flash (Red LED)

An external lockout occurs if the integrated ignition control determines that a measurable combustion cannot be established within 3 consecutive ignition attempts. If flame is not established within the 7-second trial for ignition, the gas control valve is de-energized, 30-second inter-purge cycle is completed, and ignition is reattempted. The control will repeat this routine 3 times if a measurable combustion is not established. The control will then turn off the induced draft blower and go into a lockout state.

If flame is established but lost, the control will energize the circulator blower at the heat speed and then begin a new ignition sequence. If flame is established then lost on subsequent attempts, the control will recycle for 4 consecutive ignition attempts (5 attempts total) before locking out.

The diagnostic fault code is 1 flash for a lockout due to failed ignition attempts or flame dropouts. The integrated control will automatically reset after 1 hour, or it can be reset by removing the thermostat signal or disconnecting the electrical power supply for over 5 seconds.

If diagnostic red LED indicates an external Lockout, perform the following checks:

- Check the supply and manifold pressures.
- Check the gas orifices for debris.
- Check the gas control valve for proper operation.
- Check the flame sensor. A drop in flame signal can be caused by nearly invisible coating on the sensor. Remove the sensor and carefully clean with steel wool.
- Check the wiring. Check wiring for opens/shorts and incorrect wiring.

IMPORTANT: If you have to frequently reset your gas/electric package unit, it means that a problem exists that should be corrected. Contact a qualified servicer for further information.

Pressure Switch Stuck Open—2 Flashes (Red LED)

Causes:

- Faulty pressure switch
- Faulty wiring
- Disconnected or damaged hose
- Blocked or restricted flue
- Faulty induced draft blower

If the control senses an open pressure switch during the pre-purge cycle, the induced draft blower will be energized only.

If the pressure switch opens after ignition has begun, the gas control valve is de-energized, the circulator blower Heat Off cycle begins and the induced draft blower remains on.

Pressure Switch Stuck Closed—3 Flashes (Red LED)

Causes:

- Faulty pressure switch
- Faulty wiring

If the control encounters a pressure switch stuck closed, the induced draft blower remains off.

Open Thermal Protection Device—4 Flashes (Red LED)

If a limit switch opens, the gas control valve is immediately de-energized, and the induced draft and air circulating blowers are energized. The induced draft and air circulator blowers remain energized until the limit switch closes again.

Primary Limit Switch

A primary limit switch will open due to excessive supply air temperatures possibly caused by:

- A dirty filter—Check filters.
- Excessive duct static—Check total external duct static.
- Insufficient airflow—Check blower motor and motor speed tap (see wiring diagram).
- A faulty limit switch—Check limit switch

NOTE: This limit switch will automatically reset once the temperature falls below a preset level.

Auxiliary/Secondary Limit Switch

An auxiliary/secondary limit switch will open due to:

- A dirty filter—Check filters.
- Excessive duct static—Check total external duct static.
- Insufficient airflow—Check circulator blower motor and motor speed tap (see wiring diagram).
- A faulty limit switch—Check limit switch.
- A failed circulator blower—Replace circulator blower.
- An interruption in electrical power during a heating cycle—Automatic reset secondary limit switch is located on top of the circulator blower assembly.

Rollout Limit Switch

If the burner flames are not properly drawn into the heat exchanger, the flame rollout protection device will open. Possible causes are

- Restricted or blocked flue passages.
- Blocked or cracked heat exchanger
- Failed induced draft blower
- Insufficient combustion air.

NOTE: The rollout limit switch is a manual reset limit switch located on the burner bracket. The cause of the flame rollout must be determined and corrected before resetting the limit.

Flame Detected with Gas Control Valve Closed—5 Flashes (Red LED)—2 Flashes (Amber LED)

If a flame is detected with the gas control valve de-energized, the combustion and air circulator blowers are energized.

The control can be reset by removing the power supply to the unit or it will automatically reset after 1 hour. Incorrect wiring is the probable cause for this fault.

Low Flame Signal—1 Flash (Amber LED)

Under some conditions, the fuel or air supply can create a nearly invisible coating on the flame sensor. This coating acts as an insulator causing a drop in the flame signal. If the flame signal drops below a predetermined value, the ignition control will display an error code of (1) flash on the amber diagnostic LED. The unit will continue to operate until the control can no longer detect flame.

Abnormal Operation—Cooling

Short Cycle Compressor Delay—6 Flashes (Red LED)

The automatic ignition control has a built-in feature that prevents damage to the compressor in short cycling situations. In the event of intermittent power losses or intermittent thermostat operation, the ignition control will delay output to the compressor contactor for 3 minutes from the time power is restored or thermostat call for cooling is restored. Compressor is off a total of 3 minutes.

NOTE: Some electronic thermostats also have a built-in compressor short cycle timer that may be longer than the 3-minute delay given above. If you are using an electronic thermostat and the compressor has not started after 3 minutes, wait an additional 5 minutes to allow the thermostat to complete its short cycle delay time.

High Pressure Switch/Loss of Charge Switch—9 Flashes (Red LED)

Some models include a high pressure cutout switch and/or a loss of charge cutout switch. The high pressure cutout switch protects the refrigeration system from excessive operating pressures. The loss of charge cutout switch protects the refrigeration system from very low operating pressures due to a loss of refrigerant. Compressor operation will be disabled if either of these devices opens.



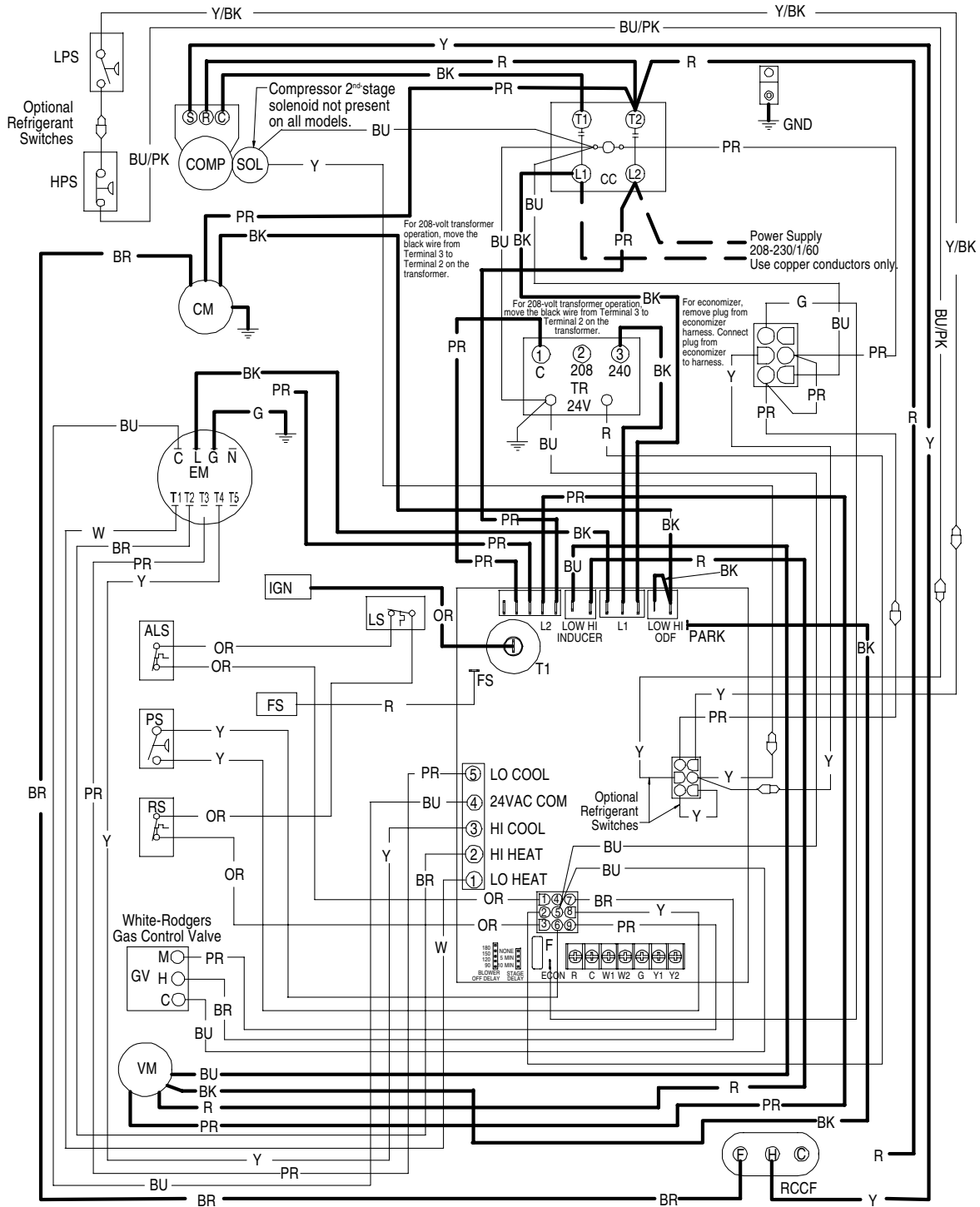
WARNING

HIGH VOLTAGE!

Disconnect ALL power before servicing.

Multiple power sources may be present.

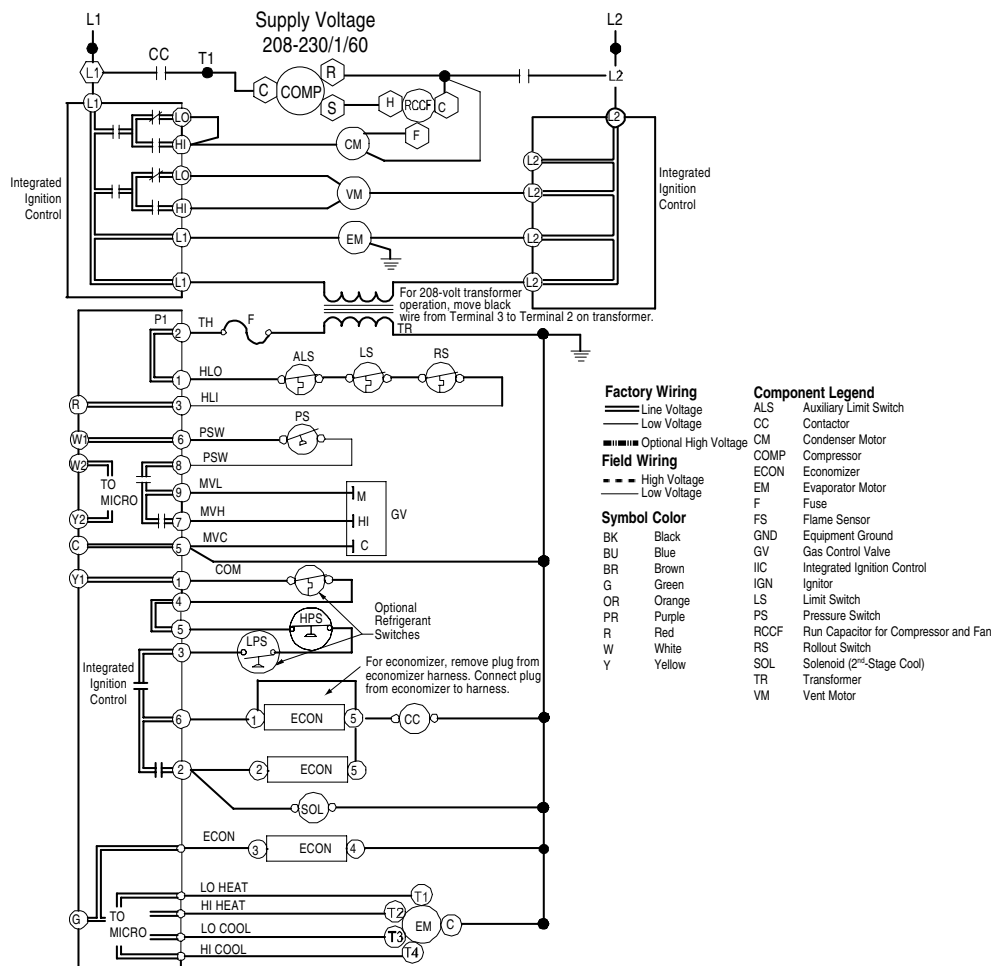
Failure to do so may cause property damage, personal injury or death.



⚠ WARNING

HIGH VOLTAGE!

Disconnect ALL power before servicing.
Multiple power sources may be present.
Failure to do so may cause property damage, personal injury or death.



Ignition Control Diagnostic Indicator Chart

Red Light Signal	Refer to “Abnormal Operation—Heating” and “Abnormal Operation—Cooling”
Off	Internal control failure
1 flash	External lockout
2 flashes	Pressure switch stuck open
3 flashes	Pressure switch stuck closed
4 flashes	Thermal protection device open
5 flashes	Flame detected with gas control valve closed
6 flashes	Short cycle compressor delay (cooling only)
7 flashes	Limit opened 5 times within the same call for heat
8 flashes	Indoor/outdoor thermostat open (cooling only; devices not present on all models)

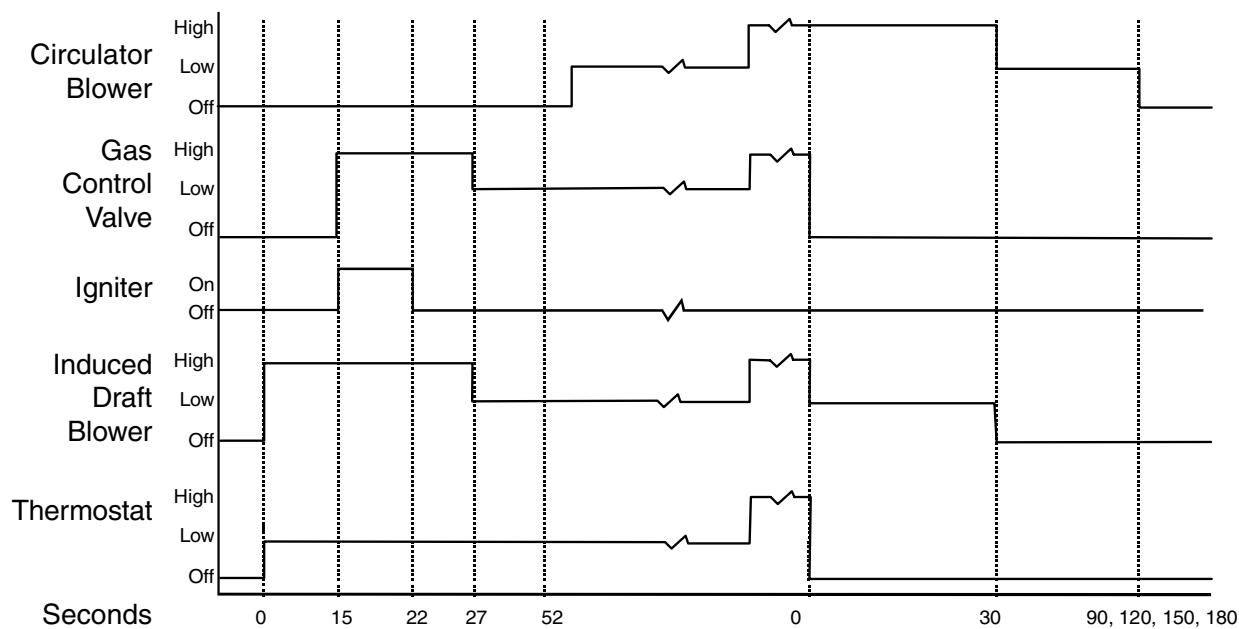
Ignition Control Diagnostic Indicator Chart

Red Light Signal	Refer to “Abnormal Operation—Heating” and “Abnormal Operation—Cooling”
9 flashes	High pressure/loss of charge switch open (cooling only; devices not present on all models)

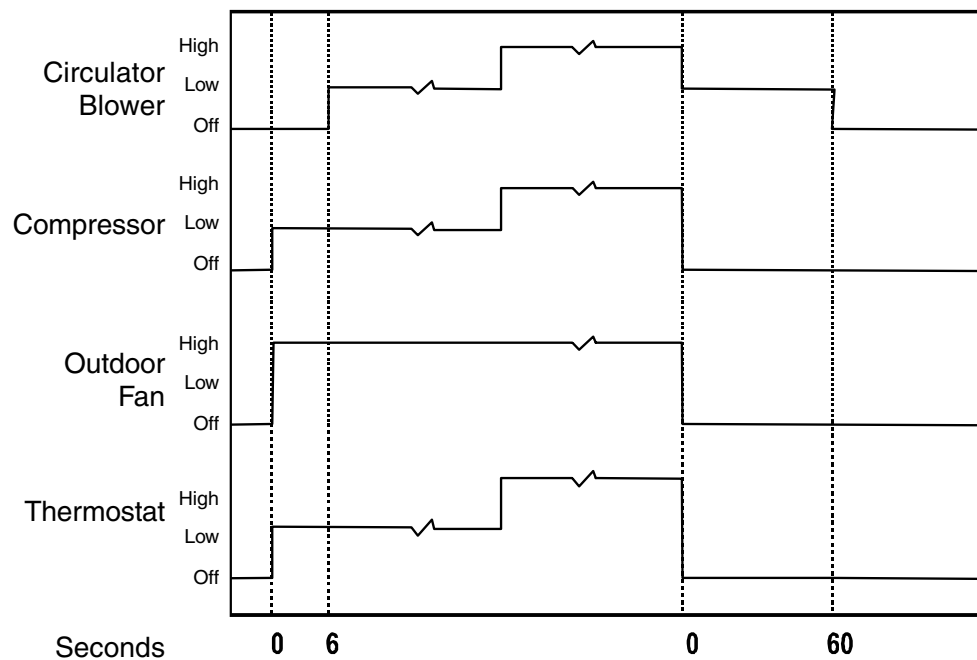
Ignition Control Diagnostic Indicator Chart

Amber Light Signal	Refer to “Abnormal Operation—Heating” and “Abnormal Operation—Cooling”
Off	No flame present
On	Normal flame
1 flash	Low flame current
2 flashes	Flame detected with gas control valve de-energized

Heating Timing Chart



Cooling Timing Chart



ASSISTANCE OR SERVICE

If you need further assistance, you can write to the below address with any questions or concerns:

Whirlpool® Home Cooling and Heating
14610 Breakers Drive
Jacksonville, FL 32258

Please include a daytime phone number in your correspondence.

Accessories

To order accessories, contact your Whirlpool® Home Cooling and Heating dealer.